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WOOD CARVING *and* WHITTling

A practical handbook of drawings and detailed instructions that will show you how to start and to acquire skill in the fascinating hobby and art of wood carving

PREPARED BY THE EDITORIAL STAFF
OF POPULAR SCIENCE MONTHLY

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WOOD CARVING
and
WHITTling

WOOD CARVING AND WHITTLING

CHAPTER I

TOOLS AND EQUIPMENT

THE tools needed for wood carving are comparatively few. A set of carving tools may consist of a knife and the means for sharpening it, or it may include many more items. Excellent and intricate carving has been done with no more than a pocketknife; and this may well suffice, providing one cannot afford a greater outlay. The most necessary qualification for the beginner in wood carving is the urge to carve. With this, and some perseverance, the ability to carve will soon become an accomplished fact.

While this book will contain many projects that may be undertaken with no more equipment than a pocketknife, it is desirable and, if the reader wishes to pursue the craft, advisable to add many other items to one's kit of tools.

A dozen well-selected carving chisels will suffice to begin with. Many wood carvers have a far greater number of tools in their kit than they need, or will ever use. A case that illustrates this point was brought

to light by the death of a wood carver recently. He left a large set of tools, and when they were examined it was found that many of them had never even been sharpened. It is best to begin working with a few tools and add others as the need for them arises. In addition

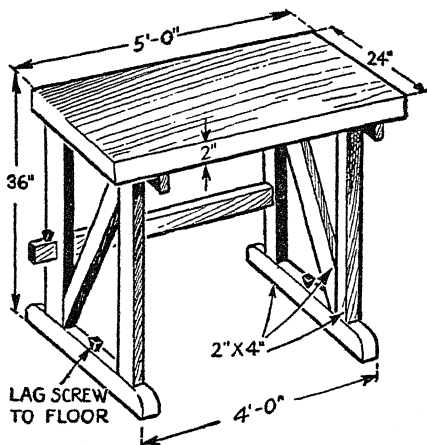


FIG. 1

to a set of chisels, the wood carver will need a good bench, some clamps, sharpening stones, a piece of leather dressed with fine emery paste, one or two mallets, and other equipment which will be described at length.

The first consideration will be a suitable bench. The kitchen table may be all right at the start but, sooner or later, a more satisfactory place at which to work will have to be found. The ordinary woodworker's bench is usually about 32 in. high, which is too low for wood carving. A wood-carver's bench should be

about 36 to 38 in. high, depending somewhat upon the height of the person using it. Too low a bench will cause the worker to remain constantly in a cramped position and get a backache. A special bench for the purpose may be built with a height of about 36 in., and a top measuring approximately 2 by 5 ft. The top should be at least $1\frac{1}{2}$ in. thick and should be made of

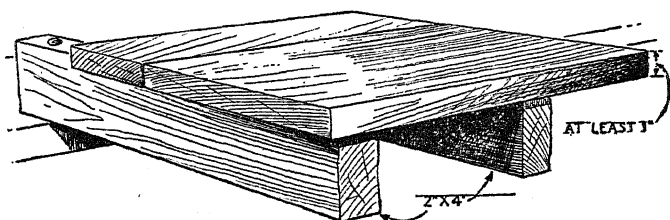


FIG. 2

hardwood, such as maple or oak. It is best to let the top overhang the frame on all sides so that work may be easily clamped to the surface of the bench. Figure 1 shows the proper type of bench for the wood carver. A vise may be added but is not essential, since most of the work will be held by means of clamps.

If the prospective wood carver already has a good woodworker's bench, the suggestion contained in Fig. 2 will probably answer his purpose. This consists of two 2 by 4's, 24 in. long, bolted to the top of the woodworker's bench. To these are nailed, or screwed, heavy boards or planks, at least 1 in. thick. These top boards should protrude on each side, to provide a clamping edge.

The latter type of improvised bench has some dis-

tinct advantages over the large workbench. It may be quickly removed when not in use and the work placed upon it may be approached from three sides. This latter advantage makes it unnecessary for the carver to shift the position of his work as frequently as would be the case with a larger bench. Where a large piece is to be carved, the type of bench shown in Fig. 1 would of course be better. For the greater portion of his work, however, the carver will find the bench shown in Fig. 2 quite adequate and handy.

The carver's bench should be placed where there is an abundance of light. A northern exposure is ideal because the light stays more nearly the same throughout the day. The bench should be located between two windows which are not too far apart, with one end of the bench directly in front of one of the windows. This position will allow the work to be shifted out of the direct sunlight, if necessary, and yet reduce shadows to a minimum. For the same reason, there should be adequate artificial light. Two lights of at least 100 watts apiece should be hung above the bench, one light above each end of the bench. These should have proper shades to reflect the light on the work. If proper lighting is not provided, there will be considerable eyestrain.

In Fig. 3 is shown a collection of tools and devices which the carver will need. The proper type of mallet for wood carving is the cylindrical type, which greatly resembles an old-fashioned potato masher, rather than the usual hammer type. In fact, a wooden potato masher may be used for the lighter work. For heavy

cutting a heavier mallet of the same type, made of lignum-vitae, should be used. For all ordinary purposes, a mallet made of maple, weighing from $\frac{3}{4}$ to 1

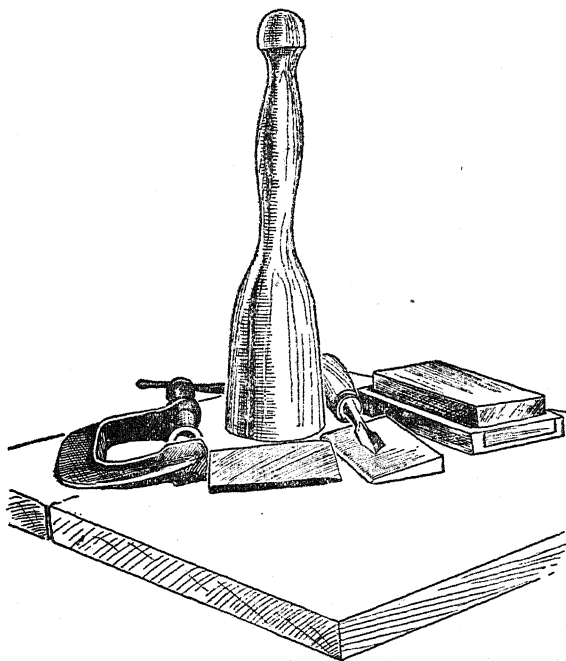


FIG. 3

lb. will be quite heavy enough. The advantage of using the type of mallet shown rather than the hammer type is that it will always strike the tool handle squarely, even though the carver's attention is concentrated on his carving details while using it. It has a better balance than the hammer type, and is therefore suited to

the deft manipulation of the tool, so necessary in carving.

The equipment needed for sharpening the various chisels consists of a good oilstone, several slip stones, and a piece of leather dressed with fine emery paste.

A small grinding wheel, powered by an electric motor, is a good investment for any shop where hobbies are pursued and it is a particularly useful tool for the wood carver to own. The small lathes, manufactured for home workshop use, have attachments for fastening a grinding wheel to the headstock. There are also inexpensive but good hand grinding wheels.

Whichever type of grinder is used, great care must be taken when grinding carving chisels not to burn the tool. Unless water is run on the grinding wheel while it is in operation, there is constant danger of destroying the temper of the tool, due to the heat generated by friction. Because of this the tool must be constantly cooled while it is being ground, either by dripping water on the wheel or by dipping the tool frequently in water.

To sharpen the tools after they have been ground, one should have a soft Arkansas or a Washita oilstone. The Arkansas stone, a hard natural stone, is excellent for this purpose. The Washita stone is softer and cuts more slowly, but gives a good edge. Carborundum—or a manufactured stone of some other material—if bought, should be the type having a coarse and a fine-grit side. For finishing, it is desirable to have a very fine-grit stone.

The slip stones (Fig. 4) are used for removing the

wire edges and burrs from the inner sides of the chisels after they have been sharpened on the flat oilstone. These are small wedge-shaped stones, having either knifelike, sharp-beveled, or rounded edges. The sharp one is used to remove the wire edge from the V-shaped tools, while the rounded one is used to remove it from the gouges.

After a tool has been thoroughly sharpened on the

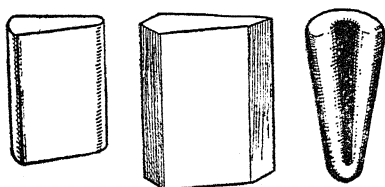


FIG. 4

oilstones, it should be stropped on a piece of leather dressed with fine emery paste.

The most important tools used by the wood carver are the various types of chisels (Fig. 5). These consist of straight chisels, gouges, and V-tools; the latter are sometimes known as parting tools. These chisels are manufactured in various forms and shapes. There are straight tools, long-bent tools, and short-bent tools, sometimes called spoons. The gouges of the latter type are either front-bent or back-bent.

The commonest and most widely used tools are the straight tools in gouges, chisels, and parting tools. An assortment of these is shown in Fig. 6. The gouges are varied in the curve of the cutting edge. These curves, known as the sweep of the tool, vary from the almost

imperceptible curve of an "extra flat" to the deep U-shaped curve of the fluters and veiners.

Carving chisels are perfectly flat, like ordinary chisels. The cutting edge, however, is beveled on both

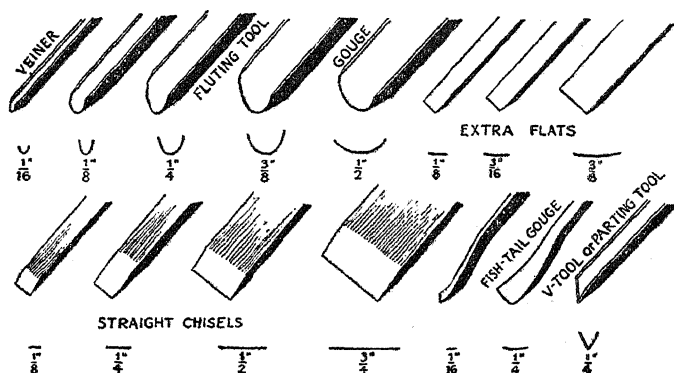


FIG. 5

sides. High-grade tools are usually numbered, and the sweeps of the straight gouges range from a No. 2, which is an extra-flat with only the slightest curve, to

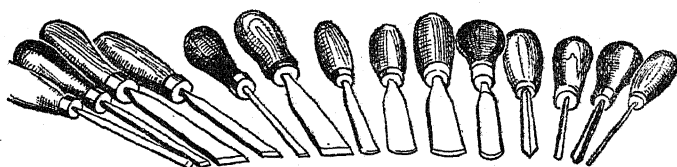











FIG. 6

a No. 11, which is a deep, U-shaped gouge. In the table on the next page, the sweeps and shapes are shown, and while this table is not necessarily standard with all manufacturers who make tools, nevertheless it indi-

cates approximately the correct numbers and their relative shapes.

It should be mentioned here that the extra-flats are really very flat gouges, running in numbers from 2 to about 4. Above No. 4, the tool becomes a gouge, since the curve quickens as the number increases. These

SWEEP	STRAIGHT GOUGES	LONG-BENT GOUGES	SPOON GOUGES	BACK-BENT GOUGES
	No. 3	No 12	No 24	No. 33
	" 4	" 13	" 25	" 34
	" 5	" 14	" 26	" 35
	" 6	" 15	" 27	" 36
	" 7	" 16	" 28	" 37
	" 8	" 17	" 29	" 38
	" 9	" 18	" 30	----
	" 10	" 19	" 31	----
	" 11	" 20	" 32	----

tools may be bought in various widths, ranging from $\frac{1}{16}$ to $1\frac{1}{2}$ in.

As a general rule, it is best to go to a place where carving tools are sold and pick the tools from stock, rather than to order them by number. A No. 6 sweep made by one company may not match a No. 6 sweep made by another firm; as a matter of fact, two No. 6 sweep tools made by the same company may vary. However, one is reasonably safe in ordering from a catalogue in which the sweeps are indicated, provided the tools are of a uniformly high grade and made by a

company which has been manufacturing carving tools for a long time. The best wood-carving tools are made of the finest Sheffield steel, and have been carefully tempered. Good tools are essential for successful work for the tools must be kept razor-sharp at all times. The coarse-grained, improperly tempered steel of cheaper tools will be sure to prove unsatisfactory.

In Fig. 7 is shown an assortment of long-bent tools.

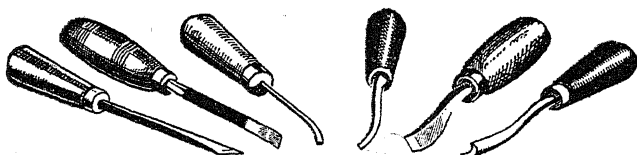


FIG. 7

As a matter of fact, practically any type of carving may be done with straight tools but curved tools have advantages not found in the straight ones for performing certain operations. While a small kit should consist mainly of straight tools, a few curved tools will serve a good purpose. For example, when carving a ball-and-claw foot, some of the places would be difficult to reach with straight tools, and one or two bent tools are a distinct asset.

When carving a concave surface, such as the cove on a turning, the short-bent tools will be almost indispensable. Figure 8 shows a number of such tools. They are all front-bent spoons, except the one on the extreme left, which is a back-bent tool. The tool at the extreme left in Fig. 7 is a fishtail skew chisel. Fishtail tools are unexcelled for getting into inaccessible places

as they have a narrow shank which flares out to form a wide-cutting edge.

For special jobs, special tools often give an added advantage. For example, a V-tool with curved sides is shown in Fig. 3. A tool of this type is very useful when cutting around the edges of the toes on a ball-and-claw foot, or to make certain cuts when carving linen fold, etc. Two unusual shapes are represented by the sec-



FIG. 8

ond and third tools from the right in Fig. 8. They are shaped like a square U. Thus it can be seen that the variety of shapes (see also Fig. 9) which a carver may use is almost endless.

When purchasing tools, the question will arise as to what shape handle to buy for the tools. Some prefer turned handles, while others swear by octagon-shaped handles. Octagon-shaped handles will prevent the tool from rolling, which is a distinct advantage. However, many wood carvers prefer a variety of handles since they learn to associate the shape of the tool with its handle, thus enabling them to pick it out much more quickly, while at work, from a number of others. This, too, is an advantage.

The sharpening of wood-carving tools is an operation requiring the greatest care. They are sharpened

somewhat differently from ordinary chisels. The straight chisels have long bevels on both sides of the cutting edge; and so do the skew chisels. Some of the tools are quite difficult to sharpen, especially when they are new. Once sharp, however, the edges may be

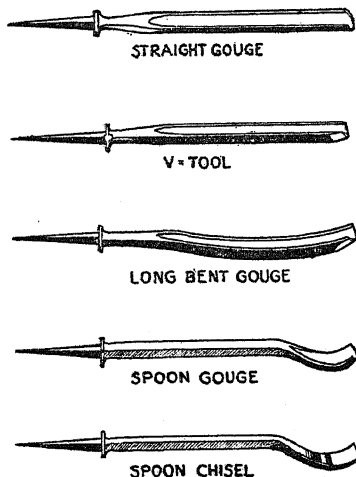


FIG. 9

kept keen with a little honing and stropping every time they tend to become the least bit dulled.

If a tool is to cut smoothly and properly, it must be first ground to the proper bevel. Working on softwoods, this bevel should as a general rule be longer than when cutting on hardwoods. However, there is no definite rule for this. After the tool has been ground properly, it must be honed on the oilstone. A little kerosene mixed with a light oil and applied to the stone will make it cut faster and prevent the surface

from glazing. Most wood carvers keep a can of such oil handy when at work. Figures 10, 11, and 12 show the various operations in sharpening a carving tool. In Fig. 10, a gouge is being honed on an oilstone. At A the tool is being rubbed over the stone with a forward-and-backward motion. The tool may be rolled from side to side at the same time. In order to smooth the

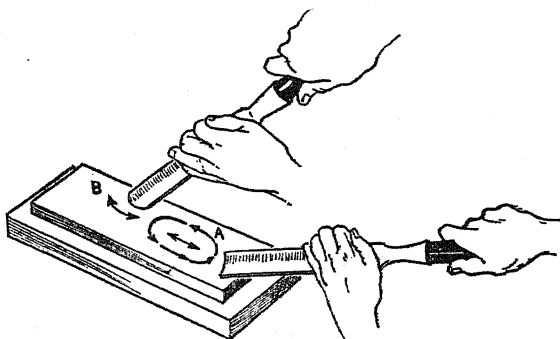


FIG. 10

bevel after it has been sufficiently honed, rub it over the stone as shown at B. The left hand exerts a downward pressure while the right hand is supplying the motive power.

Figure 11 shows the wire edge being removed from a V-tool. The method is the same for the gouges but a differently shaped slip must be used for the purpose. Figure 12 shows the final operation in sharpening the tools. This stropping on the leather is done in only one direction, as indicated by the arrow.

The entire sharpening operation requires the greatest care, and is worth taking a good deal of pains to

do well. Once the tools have been properly sharpened they may easily be kept in good condition.

When the tool has been sharpened, test it on a piece of softwood by cutting slantwise of the grain, as shown

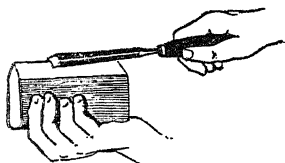


FIG. 11

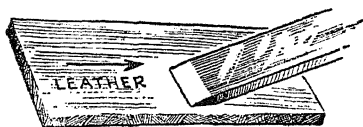


FIG. 12

in Fig. 13. If it cuts clean, leaving no scratches or tears in the wood, it is ready for use.

It is possible to purchase small power machinery for the home workshop which may be equipped with attachments and accessories that will be of great aid to the wood carver. While we firmly believe that hand-

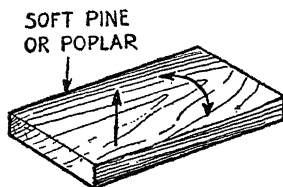


FIG. 13

work is greatly superior to machine work in this craft, there are certain tedious preliminary operations which may be much more quickly done if power tools are available. One of these jobs is routing out the backgrounds. This operation can be performed on the drill press with the aid of a special attachment for holding the cutter. After the background has been routed out,

the remainder of the carving may be done with hand tools.

One make of home-workshop lathe is equipped with an index head on the headstock. This is shown in Fig. 4, Chapter IX. It is a handy accessory when carving turned projects, for the work may be held stationary

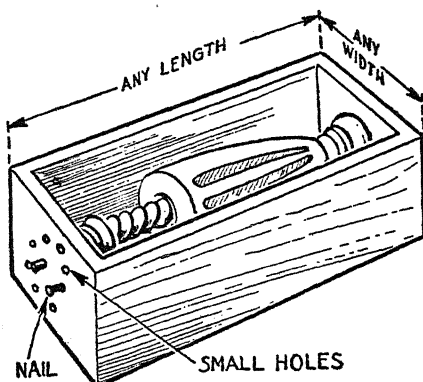


FIG. 14

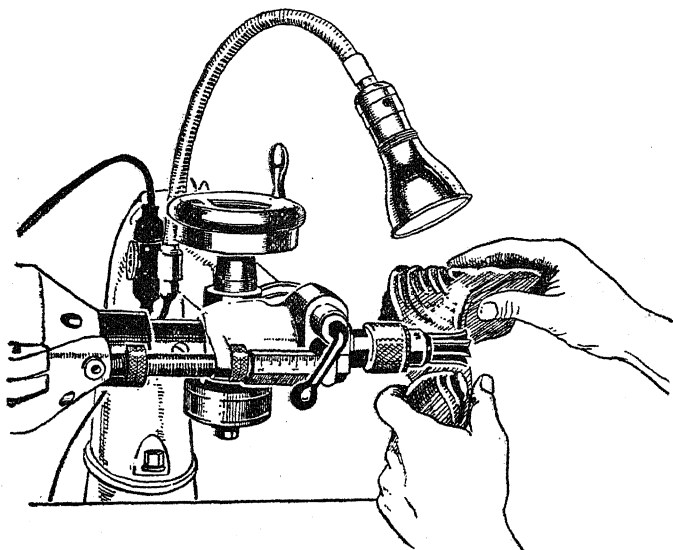
in any desired position while still mounted in the lathe. A homemade box may be built, with an improvised index head at one end, for special work of this type if such a lathe is not available (see Fig. 14).

The jig saw is a useful machine where it is necessary to make pierced carvings, such as grilles, etc. This type of work will be illustrated and described in a later chapter.

The spindle carver is shown in operation in Fig. 15. This machine is designed for production work and is shown here only for the sake of acquainting the reader

with its properties. It is a dangerous machine to operate and its use is not advisable for the amateur.

Wood carvers sometimes have occasion to use rasps and files to smooth places which are difficult to clean



(Courtesy Walker-Turner Co., Inc.)

FIG. 15

with the chisels. A complete collection of these tools, illustrating the variety of shapes available, is shown in Fig. 16. As a general rule, it is best to clean backgrounds and all other parts of a carving with the chisels rather than resort to files or sandpaper. Still, there are times when a set of curved files may be used to advantage.

When the tools are not in use, they should be care-

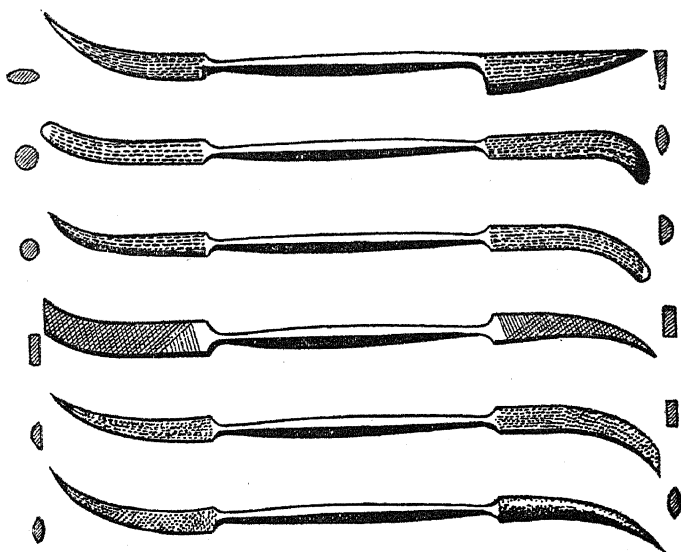


FIG. 16

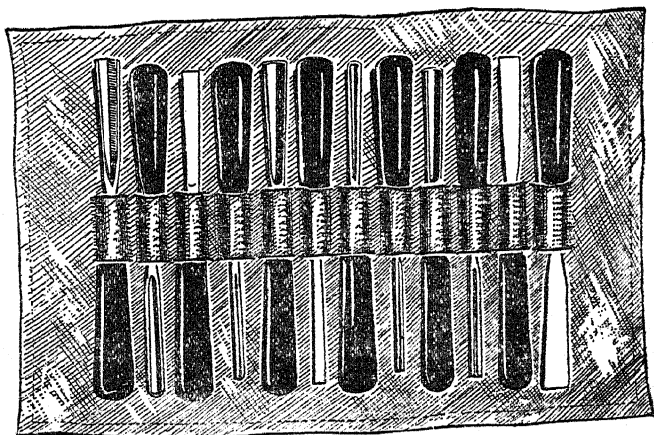


FIG. 17

fully placed on racks or in small drawers made for the purpose, or rolled up in a canvas roll. The latter type of kit is shown in Fig. 17. This practice keeps the tools in good condition and they will always be ready for immediate use.

CHAPTER II

WOODS

AFTER the wood carver has selected his tools and equipment, the next consideration will be the selection of the proper kinds of wood for his projects. Most of the better grades of cabinet woods are suitable for wood carving, but the wood to be chosen for a particular job will be governed to a great extent by the type of work to be done.

Some woods are suitable where the scale and detail of the design are to be small and delicate in feeling, while other types are better for obtaining large, bold effects. Some woods take a good finish, while others do not. Some woods are brittle and therefore not good for undercutting, while still others may be spongy and tough, or coarse grained, and should generally be avoided. All of these factors must be considered in choosing a wood.

Apple wood is very hard, close grained, and takes a good finish. It is somewhat superior to maple and birch. It is often difficult, however, to obtain well-seasoned stock. In appearance it looks very much like birch. It is suitable for undercutting, and ideal for whittling or carving in the round.

Basswood is soft and somewhat spongy. It resembles poplar in some respects. While an inferior wood for

carving, it is sometimes used if the work is to be gilded or painted.

Beech carves well. It resembles maple and yet has a distinctive figure. It is subject to attack by worms and is seldom used as a cabinet wood in America. In England it was formerly used for carved chair backs during the Jacobean period and earlier.

Birch is a firm, close-grained wood. It is hard and excellent for carving. The color of the best variety is dark reddish brown. When finished as mahogany, it greatly resembles that wood. It has, however, a denser structure than mahogany and the best grades are much harder.

Boxwood is very hard due to its slow growth. It is one of the heaviest woods we have. Unfortunately, it is not available in large pieces and is used chiefly for inlay by cabinetmakers. It is nearly white in color and makes an excellent wood for carving small ornaments.

Black cherry resembles the cheaper grades of mahogany. It is light in color and inferior to mahogany. It may be carved.

Ebony is, generally speaking, an oriental wood, the best grades of which are coal black. The wood is very heavy, hard, and durable. It is in fact one of the most durable woods known to man, and resists the attack of insects to a remarkable degree. It has been a favorite wood for carving for untold ages, especially in the Orient. It has a fine texture and a straight grain.

Red gum, a reddish-brown wood, is often substituted for mahogany or walnut. The heartwood carves well but the sapwood is tough and spongy and exceedingly

difficult to carve. The wood is subject to warping and therefore is not an ideal cabinet wood.

Maple, the variety that is used as cabinet wood, is known as rock or sugar maple and is excellent for carving. It is very hard, close grained, and takes a good finish. The curly, bird's-eye, and other figured species of the wood are not usually carved, being sought for the beauty of the grain and for use as veneers. Plain maple is often used for carving. The wood is subject to checking, especially thick pieces. It is a proper wood to use for turned legs because of its strength. It is suitable for carving medium-scale designs, standing between oak and mahogany in this respect.

Mahogany is obtainable in many grades. The best mahogany might be called the queen of woods, both for carving and cabinetmaking. The finest mahoganies come from the West Indies (Cuba and Santo Domingo). This wood is heavy, hard, close grained, and exceedingly beautiful when finished. It is dark reddish brown in color. It is a favorite with wood carvers, and as a cabinet wood is associated with the finest furniture ever built. It shrinks and warps very little after seasoning. Honduran, African, Mexican and Philippine mahoganies are inferior to the true mahoganies, being softer, lighter in color, and of inferior texture.

Oak, if mahogany is the queen of woods, deserves to be called the king of woods for cabinetmaking. The wood is hard, enduring, and has a somewhat coarse texture. It is excellent for carving, especially where work in large-scale designs is to be done, or where a

feeling of strength and virility is desirable. White oak is the best and for carving is most desirable if quarter-sawn. It is the proper wood for Gothic designs, though in late-Gothic periods walnut often took its place.

Pear wood is the best for intricate carvings in which there is to be deep undercutting, such as was found on elaborate mirror frames of the rococo style. It has an unusually uniform structure and the straight alignment of its fibers makes it possible for it to be carved in any direction. This makes it valuable where sections of a carving are nearly severed from the parent mass of the carving, such as a curled leaf or the delicate tendril of a flower carved from the solid wood. Grinling Gibbons, the master wood carver of all time, and others who imitated him used it in their most intricate creations.

Poplar is sometimes known as tulip wood. The highland trees, taken from the Appalachian Mountains, produce a greenish heartwood which has properties suitable for carving. It is possible to get wide boards. The wood is comparatively inexpensive, making it ideal for the beginner in wood carving. It takes a good finish.

Rosewood, sometimes called cocobolo, is an exceedingly hard wood and runs in color from a light red to a purplish tinge. It is used for carving and for a time during the nineteenth century it was popular because of its figured grain. It is quite brittle and hard, and for most types of carving, mahogany is much superior to it.

Teak is a valuable wood and greatly prized for cabinetwork, especially in the Orient. It is a native wood of India and the East Indies and varies in color from straw to dark brown—the color of the wood growing richer with age. It is about as hard as oak and exceedingly durable. It is easily worked with edge tools.

Black walnut is, next to mahogany, the most valuable cabinet wood. It runs somewhat harder than mahogany and has a beautiful grain and color, ranging from light to dark brown. One objection to the wood is the fact that insects attack it readily, especially if left unfinished. Walnut is excellent for carving and beautiful work is produced with it. It is suitable for large and fine-scale designs, being more or less unique in this respect.

The following woods are generally considered unsuitable for carving and, although sometimes used, are avoided by the experienced carver because of defects which make them difficult to work: red cedar, too knotty; chestnut, too coarse; ash, hickory, too coarse and fibrous; white pine, too soft and spongy, though fairly good for whittling; yellow pine, uneven in texture; fir, stringy and spongy.

CHAPTER III

CHIP CARVING

CHIP carving is one of the easiest forms of wood carving and therefore a good one with which to get started in this captivating craft. It produces highly decorative work and only a few tools are needed to turn out the most intricate designs.

The skew knife and skew chisel are the two most

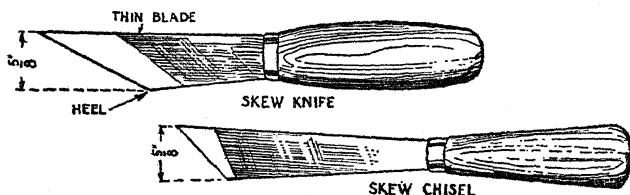


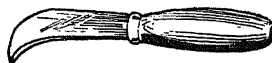
FIG. 1

important tools used by the chip-carver. These two tools are shown in Fig. 1. The skew knife is thin-bladed, sharpened with a long bevel on both sides of the cutting edge. It may be held with either one or both hands when being used.

The skew chisel may be substituted for the skew knife many times. It is perhaps the handier tool of the two when cuts are to be made in which the heel of the tool is to be used; the knife will do more efficient work when making the toe cuts. Some carvers use a hook-

billed knife (Fig. 2) to make curved cuts. Others prefer to use the skew knife and skew chisel for all cutting.

Anyone who wishes to try his hand at chip carving, but lacks the proper tools, may improvise a set for



HOOK-BILLED KNIFE

FIG. 2

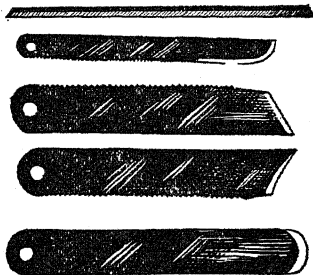


FIG. 3

himself from worn-out hack-saw blades. Such a set is shown in Fig. 3.

The V-tool may be used to advantage where a definite line is needed as a starting place, to emphasize border lines, and to separate different parts of a design at the beginning, as at E in Fig. 6.

Besides the tools mentioned above, it will be necessary to have the usual sharpening equipment, clamps, and a mallet; all of which have been described in Chapter I.

The proper method of making the first simple cuts

in chip carving is shown in Fig. 4. The toe of the skew is used to sever the fibers of the wood as at A. At B, the chip is sliced away by cutting under it, while C shows the cut completed. It is not always possible to complete an entire cut with a single chip. The number of chips, or slices, required to complete a single cut

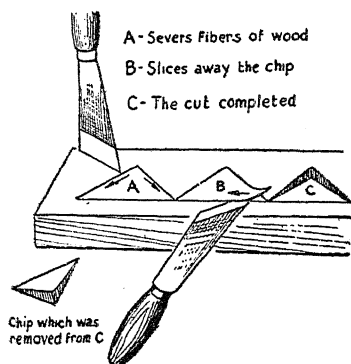


FIG. 4

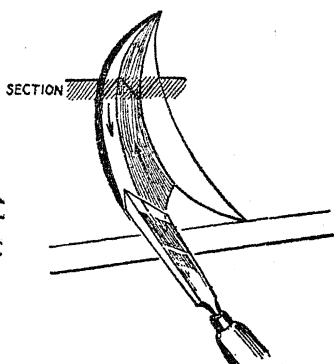


FIG. 5

will vary and depend upon several factors, such as hardness of the wood, the size of the cut to be made, etc. The worker will quickly learn the proper procedure when he begins to carve.

To make the curved cuts, the heel of the skew is generally used, as shown in Fig. 5. Either the knife or the chisel may be used. Various curved cuts are shown in Figs. 6 and 7. The part shown at D in Fig. 7 is left level with the surface of the carving. When making cuts, such as the one shown in Fig. 5, it will be found that in most cases the direction in which the cutting is done on one side will have to be reversed on

the other side, as indicated by the arrows. A little practice with the tools will quickly make this clear to the

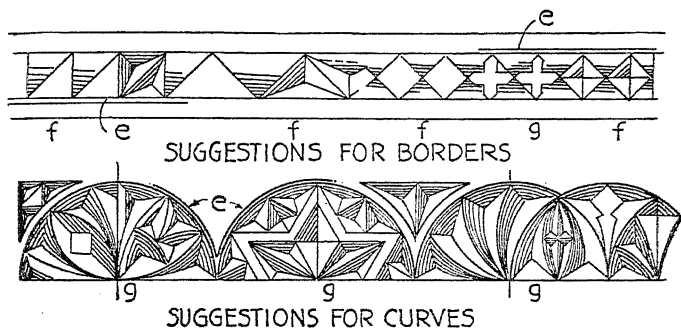


FIG. 6

FIRST CUTS IN CHIP CARVING

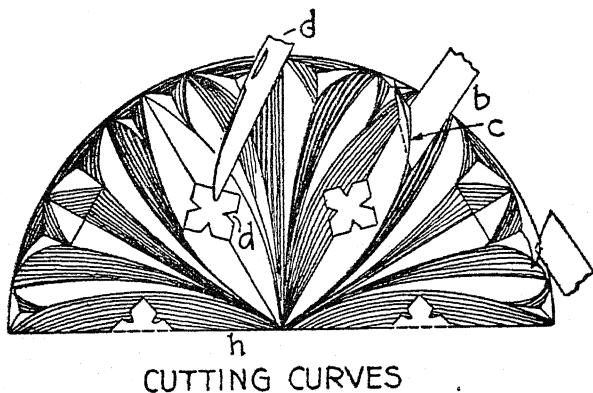


FIG. 7

beginner. To make curved cuts of the type shown in Fig. 8, the tool may be controlled more easily if a mallet is used.

The experienced chip-carver will invariably select soft, straight-grained wood, free from blemishes, for all carvings. Well-seasoned yellow poplar, red gum,



FIG. 8

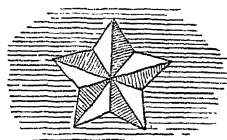


FIG. 9

mahogany, and black walnut are favorites. Maple and birch are good, too, but are somewhat harder and therefore not good material to begin on. Pine is too

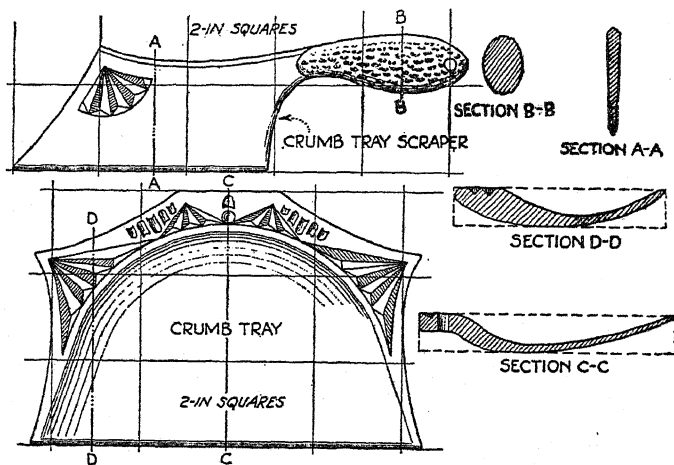


FIG. 10

soft in most cases; coarse-textured woods, such as oak and chestnut, should be avoided.

When beginning to carve, the following suggestions will help: Follow lines closely and keep tools sharp

enough to cut clean, with no suggestion of scratches. Avoid making the cuts too deep at first, and endeavor to make adjoining depths alike. If the carving needs sanding after it has been completed, be careful to leave the edges and ridges sharp. Do no sanding while the cutting is in progress, for this will add to the difficulty of keeping the tools sharp. Draw the design carefully

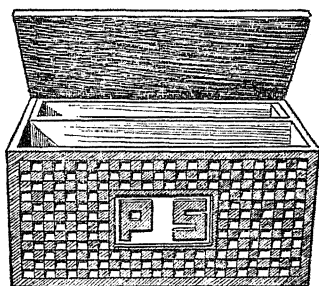


FIG. 11

so there will have to be no guesswork as the carving proceeds.

Practice, at first, on simple exercises, such as the star shown in Fig. 9. After confidence has been gained, the next logical step is to make some useful object, such as the crumb tray and scraper illustrated in Fig. 10. The design carved on these is simple enough for the beginner. Another simple design that is quite attractive is shown in Fig. 11. This box is carved in a checkerboard design which is easily laid out and may be carved with a narrow straight-edged chisel.

Some suggestions for useful projects on which chip carving can be used to advantage are shown in the

following illustrations, with an appropriate style of design indicated for each: Fig. 12, rush-seat stool; Fig. 13, pin tray; Fig. 14, book end; Fig. 15, picture frame.

There is little doubt that once this craft has been

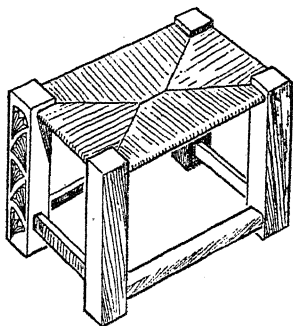


FIG. 12

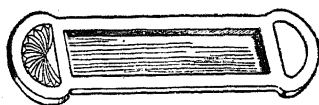


FIG. 13

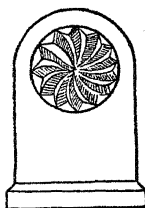


FIG. 14

attempted, the worker will wish to make many articles to carve. Two designs have been included, with detailed drawings and information, to aid anyone wishing to build them. The handkerchief box, shown in Figs. 16 and 17, has a carved design, the figures of which are large enough in scale so as not to present too many difficulties to a beginner. The box may be built and completely assembled before the carving is begun. The squares should then be laid off on the lid and sides and

PICTURE
FRAME

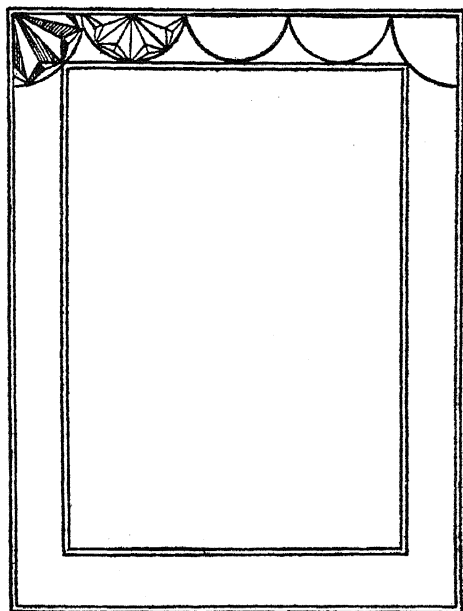


FIG. 15

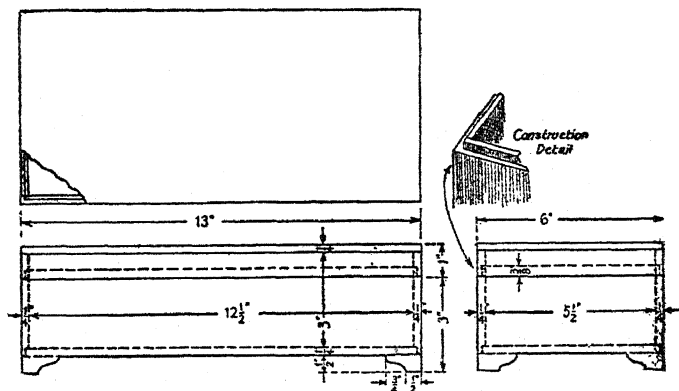
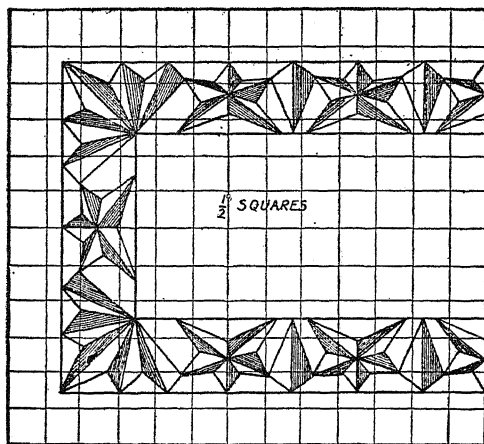


FIG. 16—HANDKERCHIEF BOX

the design drawn, after which it may be carved. If desired, the design may first be laid out on paper and then transferred to the box by means of carbon paper.



DESIGN FOR TOP OF HANDKERCHIEF BOX

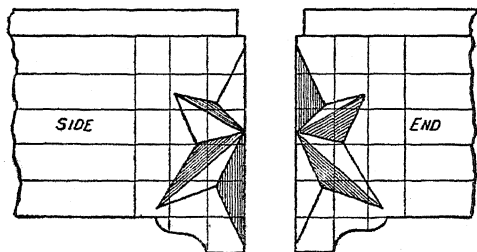


FIG. 17

The star, carved on the corner of the box, is an idea which may be varied and carried out in various other forms.

The photograph frame (Fig. 18) is an item using

much smaller design units, and therefore the difficulty of carving it is somewhat increased. It will be a good article for anyone who has gained some proficiency and

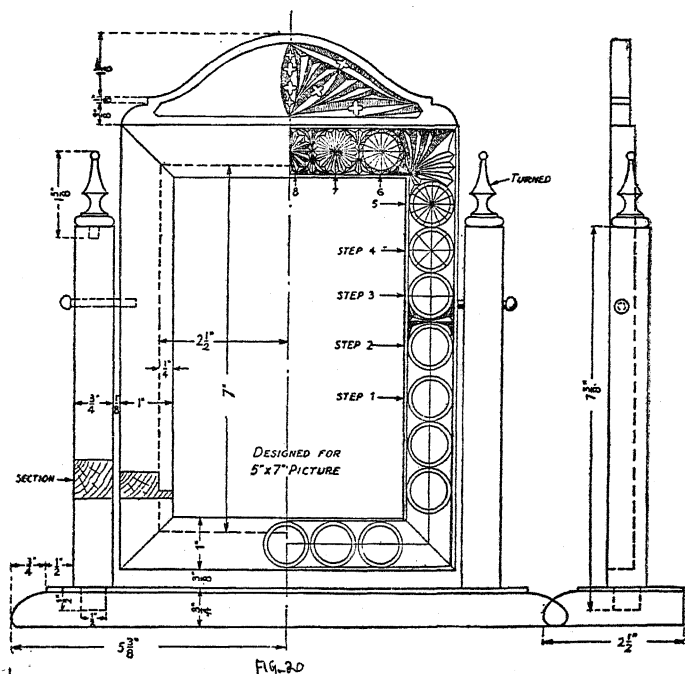


FIG. 18

wishes to undertake a carving requiring more skill. The steps necessary to laying out the design for the frame are given in the drawing. The small, flat, star-shaped figures at the top are an interesting variation of the usual cuts used in chip carving. In applying the design for the top, first lay out those elements in which

the star-shaped figures appear, then fill in the balance of the spaces with the design as shown.

The posts and base of the photograph frame may be carved but it is best to avoid too much carving on a single object. Greater interest will result if some restraint is practiced. A solidly carved piece usually lacks character.

If a person wishes to work up original designs for projects after he has carved a few of the ones given in this chapter, it is suggested that he procure a T-square, triangles, a ruler, and a compass. All the designs used in chip carving are derived from geometrical sources, that is, they are composed of circles, triangles, rectangles, etc. A design may be started by drawing a triangle and adding others, or the beginning of the design may be a circle. As one proceeds, ideas are bound to unfold and the designs will almost form of their own accord. It is not advisable to do any original designing until some carving has been done from prepared sketches.

CHAPTER IV

INCISING

ALMOST everyone who has tried chip carving with any degree of success will wish to try his hand at other forms of carving. He will want to use the various chisels to see what may be accomplished with them. In order that one may become familiar with the tools, and their manifold possibilities, it may be well at this point to cut a variety of patterns, as shown in Fig. 1. While exercises such as these have no practical value except to give one the "feel" of the tool, they are justifiable at this early stage of the work because they create confidence in one's ability when attempting projects of a more practical nature.

Take a board of well-seasoned poplar, of any convenient size, and reproduce the cuts shown. It may be well to start with the grooves shown at No. 8. These are made with a $\frac{1}{8}$ -in. veiner. Next try the cuts with the V-tool shown at No. 1. At No. 3 are shown a number of V-cuts rounded over with the heel of the skew chisel to form beading; at No. 5, this is carried a step further, the beading being formed into beads with the toe of the skew. Various cuts made with the shallow gouge are shown at No. 2, and similar cuts, made by using various gouges, are also shown at Nos. 6 and 9. Number 7 shows an interesting effect obtained with a

gouge, which simulates hammered metal, and is often used as a background. A simple form of rope carving is represented by No. 4. Numbers 10, 11, and 12 show

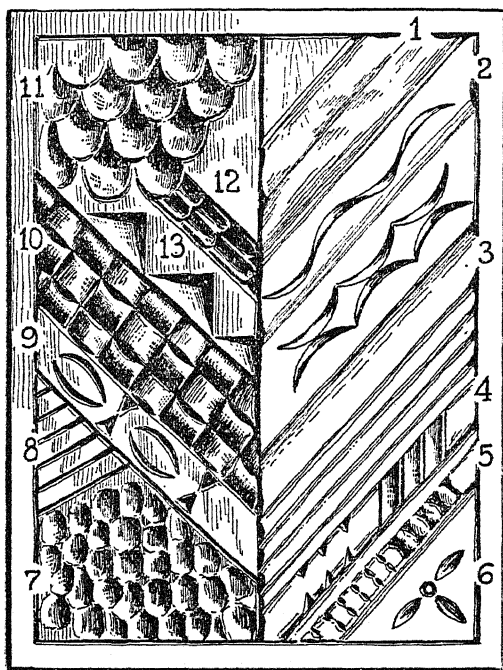


FIG. 1

different forms of imbricated carving. Number 11 resembles fish scales, and is done with the gouge; No. 12 is done with a fluting tool. Number 10, which is done with a V-tool and a skew chisel, resembles a basket weave or interlaced ribbon. Number 13 is chip carving, which was described in the preceding chapter.

By carving a panel such as this, it is possible to become familiar with the use of nearly every tool in the carver's kit; and if mistakes are made, they will do no harm. Sufficient care should be taken, however, to do the work as neatly as possible so that real benefit may be derived from the time spent. When the exer-

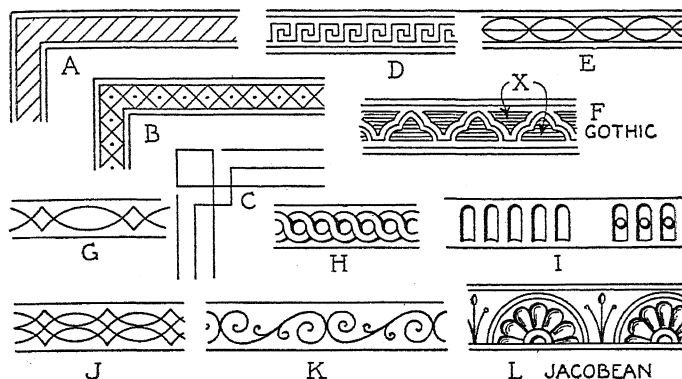


FIG. 2

cise has been completed, it is well to go on to carving an object which will have practical value.

In Fig. 2 are shown a number of border designs which may be adapted to many kinds of useful projects. They may be used for table aprons, friezes, bands and borders, picture frames, and numerous other purposes which will suggest themselves to the craftsman. All of the cuts, with very few exceptions, may be made with a $\frac{1}{8}$ or $\frac{1}{16}$ -in. veiner; or if preferred, with a V-tool. The large grooves forming the petals of flowers in the lunettes (L) must be made with a deep gouge.

or fluting tool. The same is true of the channels cut into the border (I). In F, the shaded portions marked X may be obtained by cutting fine parallel lines with a V-tool.

When carving designs of this kind, the tool should

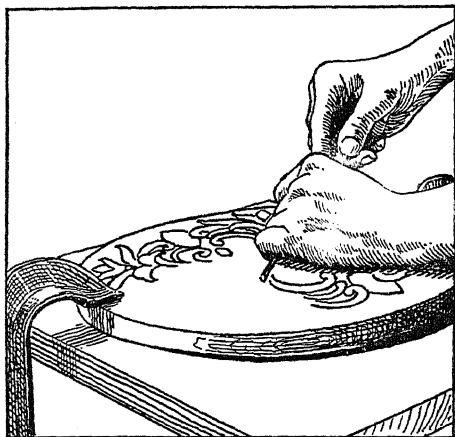


FIG. 3

be held as shown in Fig. 3. The left hand is holding the tool and guiding and controlling its movement, while the right hand furnishes the motive power. It is desirable to make as much of a continuous line as possible with one sweep of the tool rather than with a number of short strokes. To do this some practice will be necessary, but the superior results gained by such a technique will well repay the worker.

The designs shown in Fig. 4 give ideas which may be used for panel decoration or for other large surfaces

which would otherwise be left plain. A is an arabesque, a style which comes to us from Oriental sources. In B, a Grecian urn is the center of interest; C is a rococo motif. D is a grotesque design, such as was used dur-



FIG. 4

ing the Góthic periods; E is derived from the classical. F and G show the possibilities of using motifs derived from animal and bird life; H is a style greatly favored during the reign of Louis XVI of France. I and J show examples of common objects which have decorative possibilities if correctly used.

It is possible to find a wealth of designs in geometric patterns, as exemplified by the borders in Fig. 2. If

these are supplemented by motifs adapted from nature, plant or animal, from the classical, or from familiar inanimate objects, it is impossible to exhaust the great wealth of source material which is available for decorative purposes.

The most difficult job of course will be to adapt the design material properly to the project in hand. This will require thoughtful planning. It is always desirable to have the design conform to the shape of the surface it is to decorate, in order to bring about a harmonious relationship. Too much decoration, be it carving or anything else, is never desirable; there must be restraint in ornamentation. Structural considerations, such as form, proportion, outline features, etc., are of primary importance in a design; carving and other forms of embellishment should be subservient to these. Decoration should enrich, not destroy, logical structure.

In Fig. 5 are given a number of suggested projects, in which many of the design motifs shown in Figs. 2 and 4 have been used. The craftsman will see how much these objects have been enhanced by the carving, simple though it is. Once he has advanced to this point, he will never reach the end of ways to enrich his work. A hobby like wood carving develops the latent talent of the artist which makes a finished craftsman.

Several designs are shown in Fig. 6 which, while they may be carved with the V-tool, are best done with a shallow gouge (say, a No. 4 or No. 5). The carving is still simple enough to fall within the limitations set for this chapter, especially the one shown at

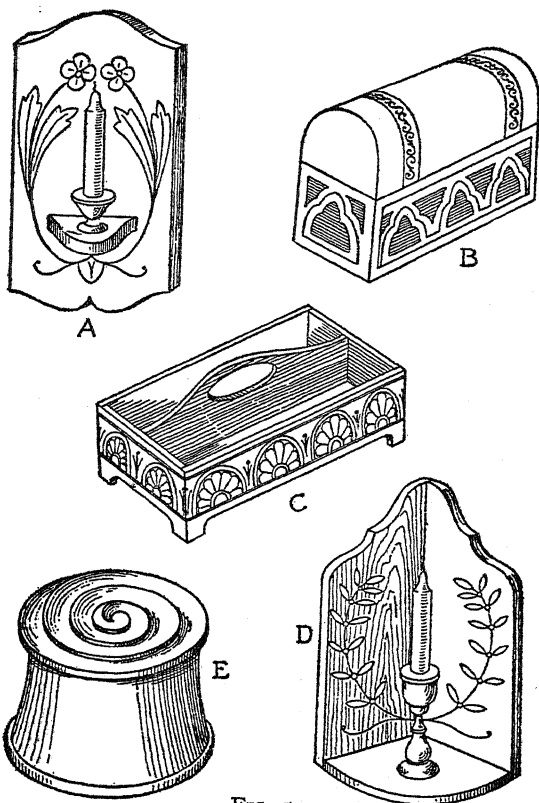


FIG. 5

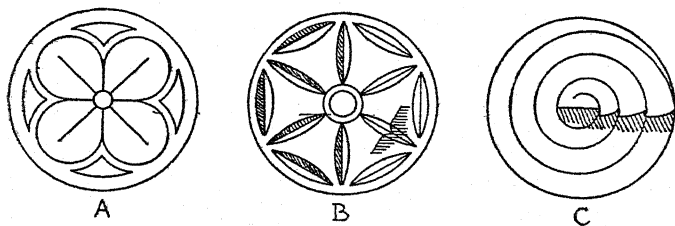


FIG. 6

B. The volute (C) will present slightly greater difficulties.

Several of the designs in Fig. 7 are shown with alternate methods of handling. In A_2 , for example, the

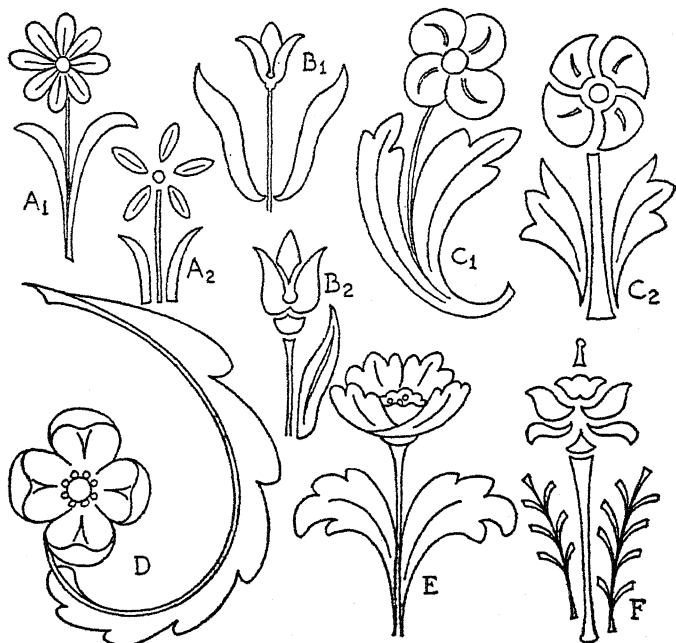


FIG. 7

conventionalization is carried further than in A_1 . This illustrates what it is possible to do with just one design. It is possible, if the craftsman is resourceful, to use a few symbols, such as the triangle, the square, the circle, and one or two others, and make countless designs by using them in various combinations. How

much more effectively this may be done when using plant forms, or other more interesting figures than circles, triangles and squares, may easily be surmised.

A carved board, designed to be used under an electric waffle iron to prevent the heat from spoiling the finish of a table top, is shown in Fig. 8. When not in



FIG. 8

use for this purpose, it forms an interesting mat for a centerpiece of flowers or a glass bowl. The design may seem complicated when looking at the completed article but it is really quite simple to draw following the method given in Fig. 9. It may be carved in two hours or less by anyone who has had a little practice with the veiner. Only a $\frac{1}{8}$ -in. veiner is needed. The board may be stained before carving and if a white board is used, such as whitewood, poplar, or teak, the contrast will be very pleasing.

The design for a hot-dish mat, the carving of which is similar to that of the waffle board, is shown in Fig. 10.

Figure 11 illustrates a Japanese tray. This is a square

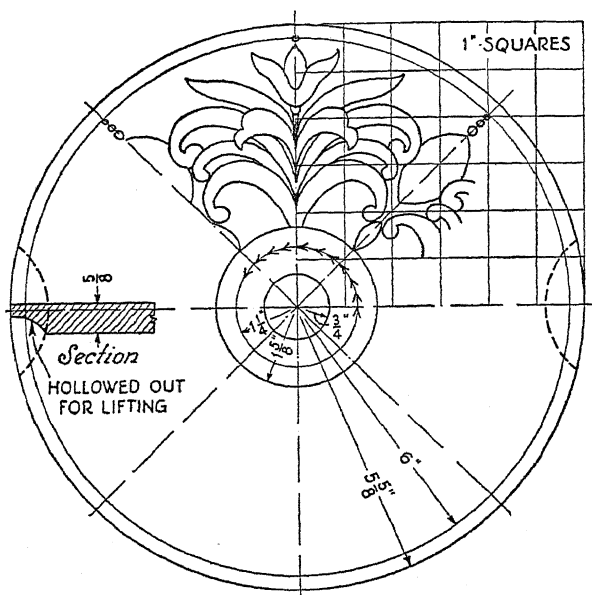


FIG. 9

board, not more than $\frac{5}{8}$ in. thick, slightly hollowed out on a lathe, and then carved with a few simple motifs which the Japanese know how to use so well. The cutting in this instance was done with a $\frac{1}{16}$ and a $\frac{1}{8}$ -in. veiner, and a V-tool. It was carved on teak wood, the wood first having been shellacked.

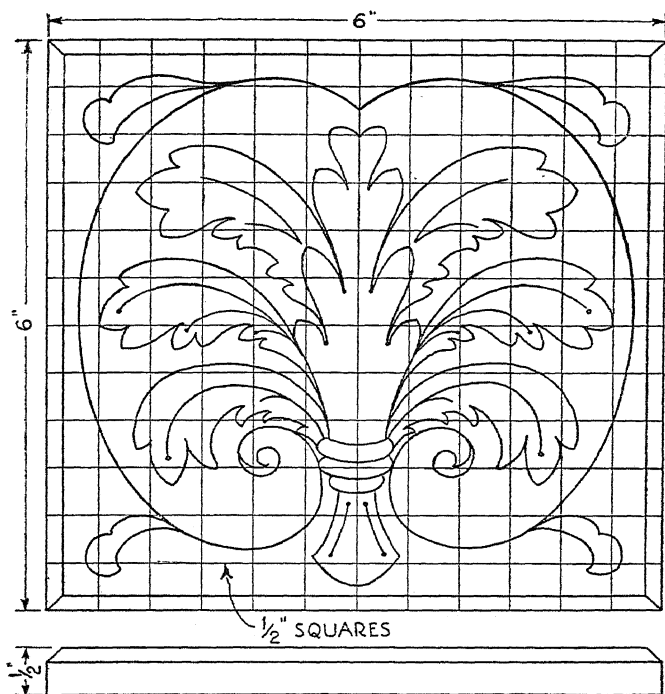


FIG. 10

FIG. 11



JAPANESE
TRAY

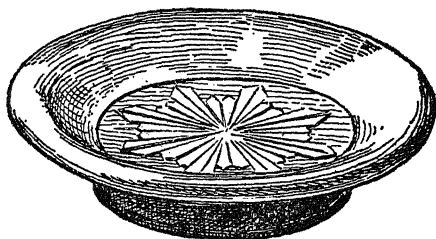


FIG. 14

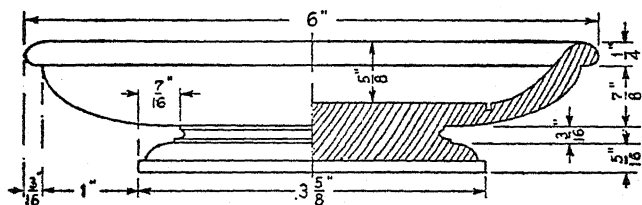
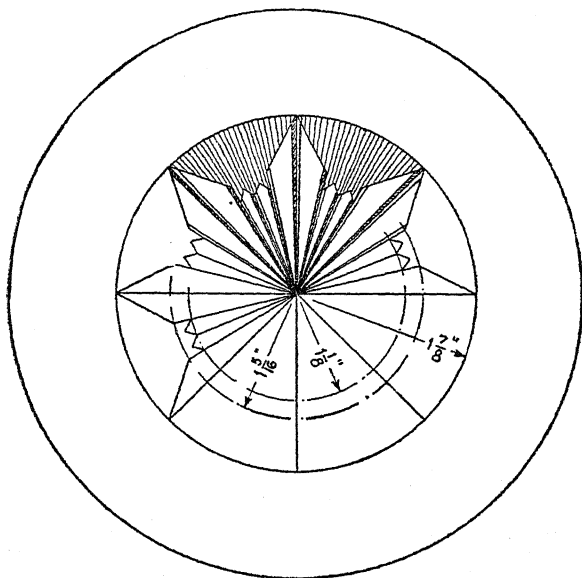


FIG. 15

for there will be many occasions where they may be put to practical use. The incisions should be sharp and regular, with curves fully rounded. This exercise will also develop the proper control of the tool.

The tray, shown in Fig. 14, has part of the background cut away to form the outline of a sunburst. The sunburst itself (see diagram in Fig. 15) has lines radiating from the center which are carved with a V-tool. Likewise, turned projects may often be enriched with carving as will be demonstrated in later chapters.

CHAPTER V

LEVEL-SURFACE CARVING

AS PROGRESS is made in wood carving, it becomes more apparent to the newcomer how absorbing this craft is. While the acquisition of skill and the satisfaction of successful accomplishment may spur the worker in any field of endeavor, this is especially true of wood carving. And the more advanced types of carving are also the more desirable from the aesthetic viewpoint. The range of possibilities for ornamentation is considerably increased in level-surface carving, the phase of work we are about to enter upon.

In incised work, the design is formed by cutting out the lines which have first been drawn on the wood. The grooves cut into the wood form the pattern. In level-surface carving the opposite is true. The pattern remains intact and the spaces around the pattern, or background, are removed. The results of this technique are far more beautiful than those produced by the former method.

Incised carving, however, should be practiced before level-surface carving is attempted because the skill acquired in doing it will be valuable when the latter work is started.

Three chronological steps are involved in level-surface carving. First, the design is outlined with a

V-tool or veiner along the long, more-or-less unbroken lines and curves (Fig. 1). Second, the short, straight lines and quick curves are cut by driving a chisel or a gouge straight down into the wood with a mallet (Fig. 2). These two operations sever the fibers, thus separating the figures comprising the design from the surrounding background. The third step consists of

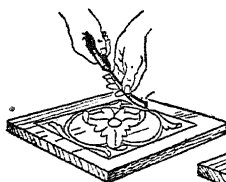


FIG. 1

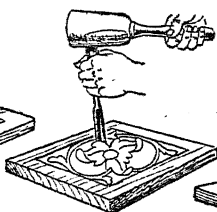


FIG. 2

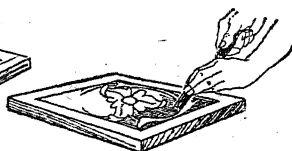


FIG. 3

removing the background by paring it away with gouges and extra-flats (Fig. 3).

While this explanation may make the process seem quite simple, enough difficulties will be encountered to test the skill and the resourcefulness of the beginner. The success of the first trial will depend a great deal upon the knowledge and manipulative ability acquired while doing the simpler forms of carving covered in Chapters III and IV. Tools must be sharp. The carver must be familiar with the wood he is using and know its limitations.

When starting the carving, it is best not to cut too deeply when outlining the pattern with the chisels as explained in steps 1 and 2. This is especially so when

softwood is used. The cutting at first should be about $\frac{1}{16}$ in. deep, and should be started slightly outside the penciled lines of the pattern, so as to allow for trimming when the background has been reduced to the proper depth. If too deep a cut is made at first, especially when performing step 2, some of the wood in the pattern is very likely to be chipped away. There is not quite as much danger of this happening on hardwood. After recessing the background to the $\frac{1}{16}$ in.-level, it may be still further reduced if desired.

Carvers, as a general rule, prefer to work with hardwoods rather than softwoods. It would seem, then, that hardwoods should be recommended for beginners. It has been found, however, that when novices start to carve in hardwoods, they do not acquire as good a technique nor are they as likely to keep their tools in as good a condition as when they begin with softwoods. The greater expense involved in purchasing hardwoods is another item to be considered.

For the first exercise or two, therefore, it is recommended that softwoods be used, even though they present greater difficulties. One who seeks only easy ways of doing things will probably never learn to do wood carving. Cut the background to a depth of not more than $\frac{1}{16}$ in. on the first exercises. Flatten and smooth the background as much as possible, but with chisels and gouges only. Avoid the use of files and sandpaper as much as possible at all times, and especially when learning to carve. Do not use machinery to remove the background when learning, because if you do, you will probably never master the fine points of wood

carving. Cut clean and true, making outlines sharp and regular. This gives the pattern a distinct edge where it meets the background. All of the above recommended practices were observed when the treasure

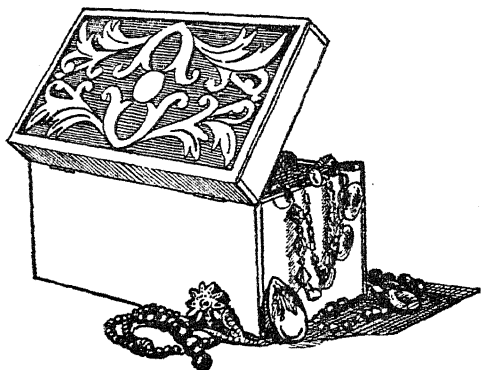
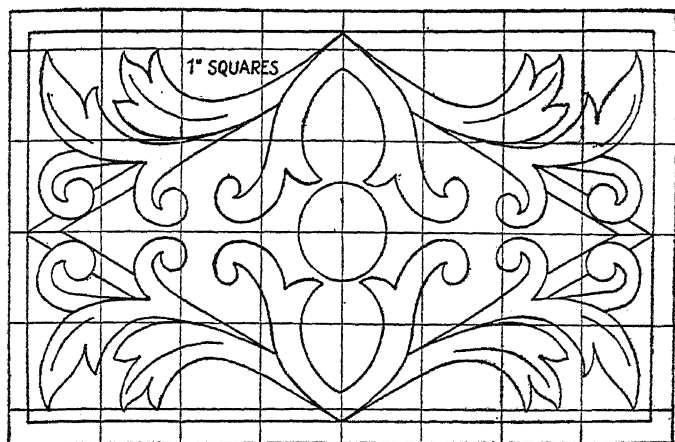


FIG. 4

chest (Fig. 4) was carved. The design for this project is given in Fig. 5.

Possibly a less intricate design may be desirable for preliminary practice. If so, try the exercise shown at A in Fig. 6, and follow it with B or C. After carving these, it should be possible to do the design on the treasure chest.

It is never a good idea to use punches to finish backgrounds. A master craftsman will not resort to punches except in very rare circumstances. He never uses them for the purpose of hiding imperfections in cutting. So many interesting textures and effects may be obtained with the chisels that it is just as well if the carver's



DETAIL OF CARVED LID

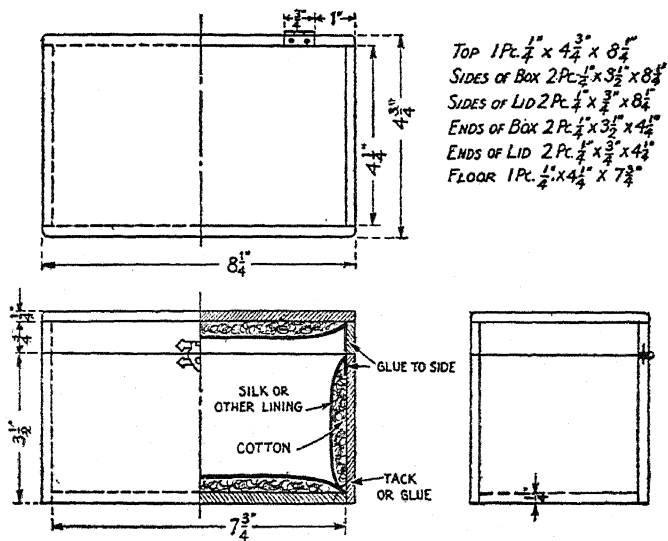
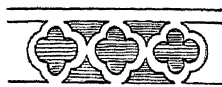


FIG. 5



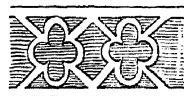
A



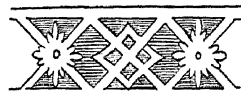
B



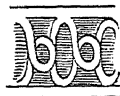
C



D



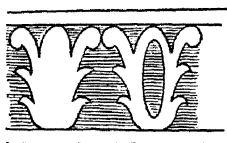
E



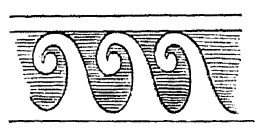
F



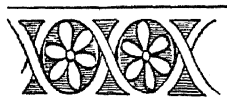
L



G



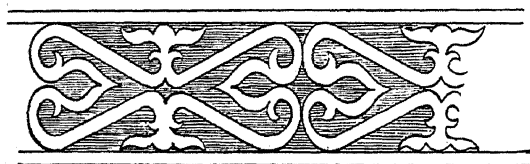
H



I



J



K

FIG. 6

kit does not contain a punch. In the treatment of backgrounds, as in all other carving, the student should aim at perfection, but since the hand does not have mechanical precision, absolute perfection will never be quite attained. This is the very essence and charm of handwork.

In choosing designs for this type of carving, select those in which the elements comprising the pattern are not too small or fine. Rather bold figures, which fill the major portion of the space to be carved, are the more desirable. It is also best to avoid designs which are too complicated, or which do not mass or "hang together" properly. The panel shown at G in Fig. 7 has these undesirable features. The design is composed of too many small, scattered units and is much too complicated for level-surface carving. All of the other panels shown in Fig. 7 are suitable for this purpose. Notice how the patterns "hang together," and also the comparative simplicity of the designs. The patterns fill the greater portion of the panels, yet there are sufficiently large areas in which the background may be removed without too much trouble.

Conventionalized plant forms, both leaves and flowers, are excellent for level-surface designs. Abstract designs are also appropriate, especially in borders as shown in Fig. 6. However, there are a great many other sources of designs as is exemplified by the adaptation of the heraldic motif (E) and the animal motif (H) in Fig. 7.

Several of the motifs shown in Figs. 6 and 7 have been adapted to projects illustrated in Fig. 8. Work

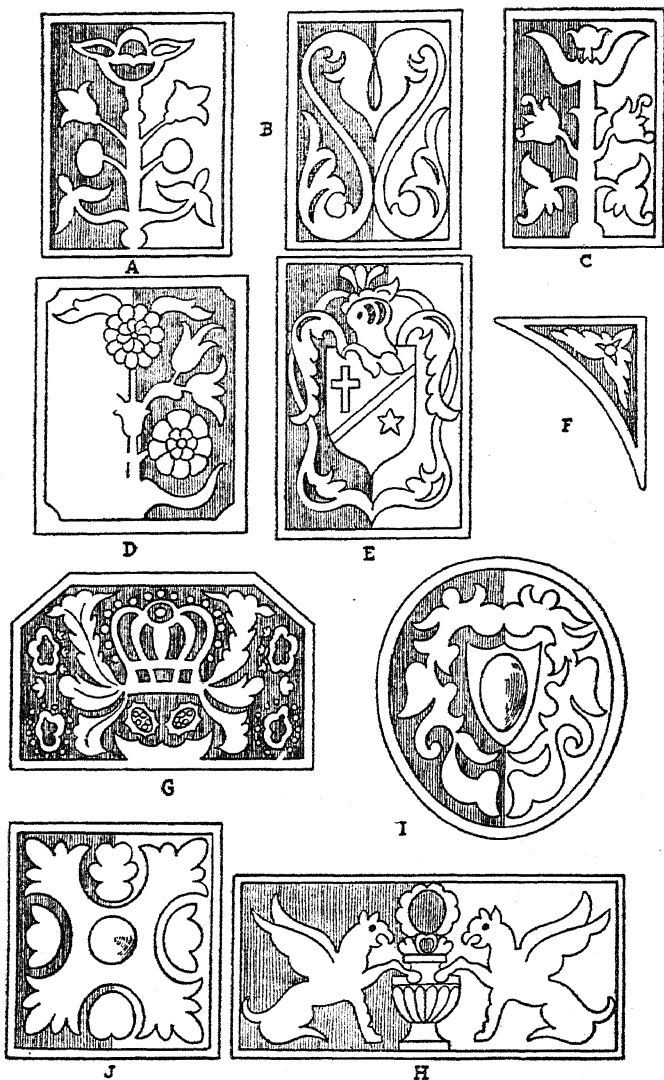


FIG. 7

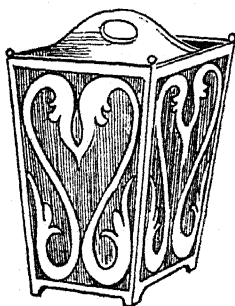
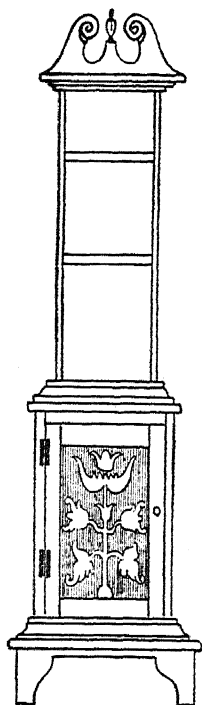
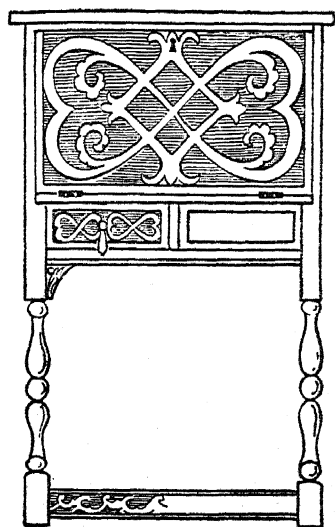
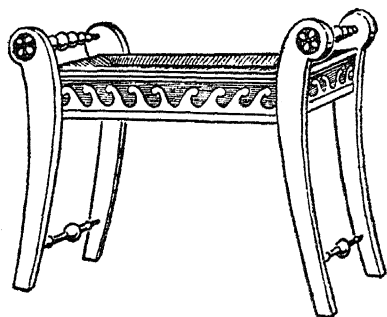


FIG. 8

carved in this manner immediately takes on additional value.

Figure 9 gives a detailed drawing of another desir-

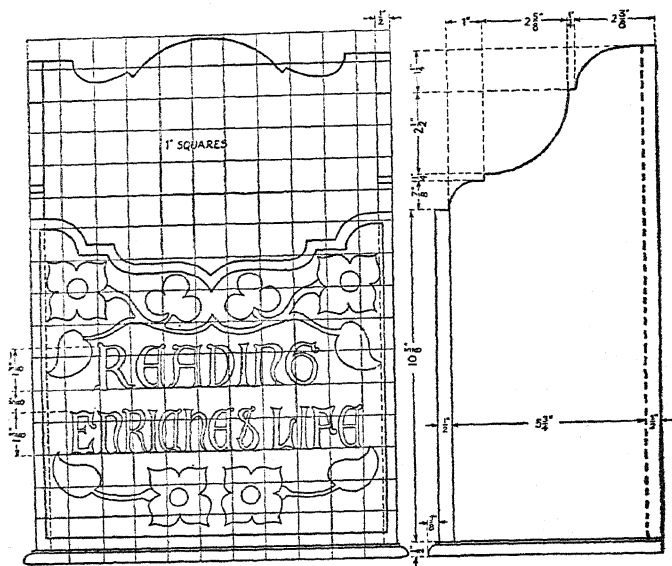


FIG. 9

able project which may be made with a minimum of difficulty by the amateur.

While the pattern in level-surface carving is perfectly flat, it should be noted that a feeling of modeling is occasionally given to it by making it appear as though certain units of the design were overlapping others. For example, in Fig. 4, some of the leaves appear to be growing out from under the scrolls, while others appear to be on top. This is accomplished very

easily by lowering the level of the unit which is to appear to come from underneath at the place where it meets the adjoining unit. Veiner cuts are sometimes made in leaves to break a feeling of monotony.

Wood carving, well executed, is always attractive if left unfinished, but level-surface carving lends itself particularly well to striking color schemes if the craftsman desires to make use of them.

CHAPTER VI

CARVING IN RELIEF

AFTER having completed several exercises or projects in flat-surface carving, the next logical step will be to attempt relief carving. As a matter of fact, when flat-surface carving is being done, there is always the temptation to work in a bit of modeling here and there on the pattern. This tendency is noticeable in the work of most beginners. If allowed to develop, it will lead the student to do relief carving naturally, almost before he himself is aware of the fact. This is desirable because if he succeeds in forming some of the elements so that they more closely resemble the thing they symbolize, rather than being left flat, he will gain confidence to go ahead and try more difficult work. As many a novice has found if he has persevered until this stage has been reached, wood carving is not nearly as difficult as it is generally believed to be.

The important thing to observe when beginning to do modeling is not to undertake too difficult a job at the outset—before one has had the opportunity to become thoroughly familiar with the tools and materials, and has acquired the necessary manipulative ability to achieve success.

While it is true that wood carving presents no insurmountable difficulties to anyone who has the ability

to do ordinary woodworking, still there are many factors which will tremendously influence the success or failure of the endeavor. First of all, it will be necessary to learn to draw rather well if one does not already have that ability before undertaking to carve. We venture to say, with little fear of contradiction, that a survey of all wood carvers who do work of any consequence would reveal that they are almost without exception draftsmen of more than ordinary skill. Drawing is a prerequisite for wood carving. It has been recognized as such by all schools where carving is taught, both here and abroad, and especially in Europe.

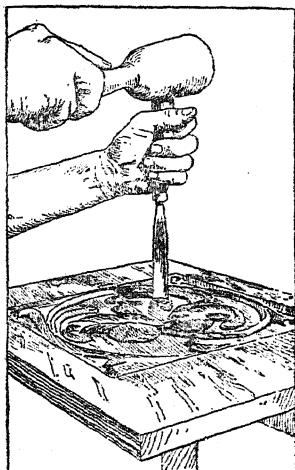
By drawing, we do not mean mechanical drawing. Wood carving is not a mechanical process. Indeed the farther removed it is from mechanical restrictions and processes, the more satisfactory the results are likely to be. One who can, with facility, draw beautiful free-hand curves, and who has some knowledge of how these may be used in the formation of foliage and various other objects, will in all probability acquire a similar technique and freedom of expression in his carving. Thus it is sincerely urged that the novice who has not already acquired skill in free-hand drawing take it up immediately.

Another great aid to the wood carver is the ability to do clay modeling. Modeling in clay is one of the simplest and most effective methods of gaining a knowledge of form. Clay is a plastic material which readily assumes any shape desired. It may be experi-

mented with and reworked as many times as desired. Furthermore, it has a valuable quality possessed by few other mediums, namely, any mistakes made in working with it may be easily and quickly rectified without loss or damage to the material. In this it has a decided advantage over wood, the properties of which are such that a mistake in cutting is often difficult, if not impossible, to rectify. When working with clay, especially the prepared kind which does not harden, it is possible to add or take away from the design with equal ease. A shape that does not suit the worker may easily be changed. Once a satisfactory piece of work has been produced, it forms an excellent model for the wood carver and will save him a great deal of time by eliminating guesswork on the wood itself. Any difficult piece of work which the wood carver is not able to visualize clearly as to form, before the carving is started, should first be modeled in clay.

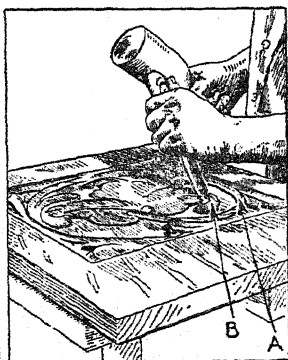
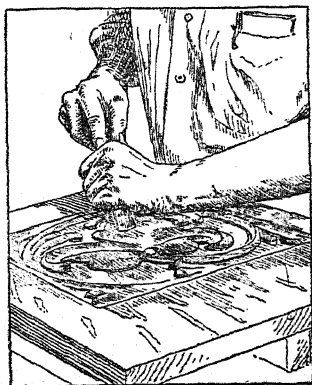
After the student in wood carving has had experience in working from clay models, and later plaster-of-Paris casts, of simple motifs which he has made, he may undertake a more ambitious exercise such as the leaf shown in Figs. 1, 2, 3, and 4. This exercise, of which a drawing on graph squares is given in Fig. 5, will teach a great many valuable lessons in modeling to anyone who attempts to carve it. The figure is bold and well formed. It has beautiful and well-rounded curves, and few places which are difficult to reach with the ordinary tools. While mere exercises, as such, may

have little practical value, one or two will teach a great deal; and since there is less fear of spoiling by mis-



FIGS. 1 and 2 at top;

FIGS. 3 and 4 below



takes than with a valuable project, several such exercises are justifiable at the start.

The leaf is carved in quartered oak, a medium well

suited to the generous scale of the design. The background is removed to a depth of about $\frac{3}{8}$ in. Figures 1, 2, 3, and 4 show the various steps involved in modeling on a flat surface. These are shown on a completed

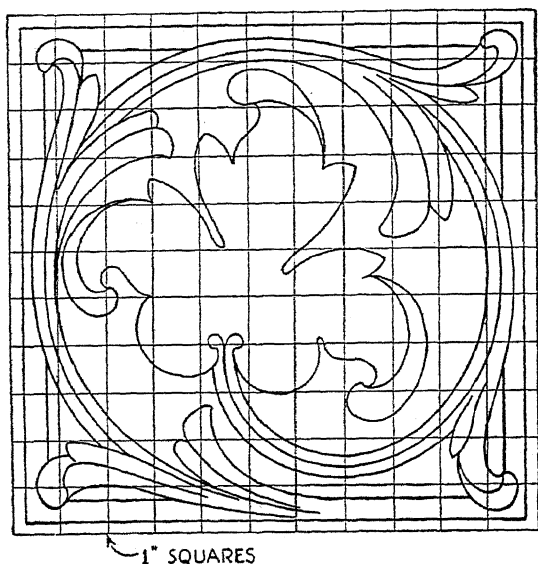


FIG. 5

panel, rather than one in the process of being carved, because it is easier to show the aim of each operation in this manner. Figures 1, 2, and 3 show operations similar to those performed when doing flat-surface carving. Indeed, the process is the same for both types of carving thus far, for modeling is flat-surface carving carried forward a step or two. In other words, the first step in modeled work consists of severing the fibers

of the wood between the pattern and the background. This is done in the manner shown in Figs. 1 and 2. Figure 1 shows the shallow gouge being hammered into the wood to cut a short curve on the leaf from the surrounding material. Figure 2 shows the V-tool being used on one of the longer curves to accomplish the same purpose. Both of these operations are repeated later on, after the background has been removed, in order to trim the pattern and get rid of any uneven edges that may have remained from the roughing-in process. The cuts employed in these two steps are usually made with the aid of the mallet, the tools being held as shown. Both operations, however, may also be performed without the use of the mallet. The mallet is used when cutting hardwoods, such as oak or maple, and especially when the roughing-in is being done. The roughing-in is the preliminary and heavy cutting done when material can be quickly removed by making heavy cuts with large tools. It is always followed by the finishing and smoothing cuts which complete the carving. When cutting softer woods, the mallet may often be dispensed with and the palm of the hand substituted in its place, or the tool may merely be pushed while being held as shown in Fig. 3.

The gouge in Fig. 3 is being used to model the center of the leaf. It is used in the same manner to remove the background (as are also the extra-flats). In performing these operations, the left hand guides and controls the tool while the right hand furnishes the motive power. It should be noted that the left hand secures a good grip on the chisel proper, near the cut-

ting edge. All of the working grips (Figs. 1, 2, 3, and 4) are posed to show the exact manner in which the tools should be held, and all are worth careful examination.

After the first cuts shown in Figs. 1 and 2 have been made, it is well to start removing the background which is nearest the design by driving the chisels, or gouges, into the wood while holding them at a high angle (about 60 degrees or more). By holding the tool in this manner, there is less danger of accidentally cutting away a part of the design, since most of the force is downward rather than outward. When all of the pattern has thus been partially "raised" by lowering the background immediately adjacent to it, the subsequent cutting may be done by holding the tool at a much lower angle—about 45 degrees or even lower depending upon the progress that has been made. The final smoothing of the background is done by paring away the surface with light cuts holding the tool very low. The roughing-in is done with the tool held at the higher angle in order to remove the material more quickly.

When modeling a leaf, such as this, a great many of the tools in the carver's kit will be used. Figure 3 shows the shallow gouge being used to hollow the rather wide, shallow concave surfaces. In Fig. 4, a deep-fluting tool is being used to cut out a deep, concave surface or groove, formed where the leaf curls over at the end. A medium-sweep gouge is used to make the cut shown at A in Fig. 4. To shape convex surfaces, such as shown at B, use flat chisels, skew

chisels, and extra-flats. The square-U tool is a good one to trim up an edge, such as the one being made in Fig. 2. Long-bent and short-bent tools will also be found to be of considerable use in modeling such a piece of work. They will be useful for the most part in finishing the modeling where the lighter cutting is to be done. Sometimes the curve of a bent tool seems to be particularly well adapted to the sweep of a curve where a straight tool would prove awkward.

The panel on which the leaf is carved is a suitable one for many practical purposes. It could be used for the lid of a box, the panel on a chest, the door on a cabinet or cupboard, or for the front of a fireplace bellows. The shape of the panel could be varied to make it square, round, or rectangular depending upon its final disposition. Many uses may be found for a carving of this type.

It may be that the beginner will want to do a number of more simple jobs before attempting anything as elaborate as the panel described above. In Fig. 6 are shown a number of designs for carved picture frames. The ones marked A, B, and C are quite simple and may be carved without consuming a great deal of time in the process. They may be enlarged or reduced to any size desired. They are fairly good jobs with which to begin. The background treatment may be varied, as indicated by the few types shown. The background in A is cut with a narrow gouge, while B and C are threaded-in with a V-tool. In places of this kind, a short-bent V-tool will be a decided im-

provement over a straight tool. The little dots in C could be made with the point of a small hand drill.

Figures 7, 8, and 9 show projects for the beginner which even a child who begins working in wood may make. The modeling is of the simplest type and the

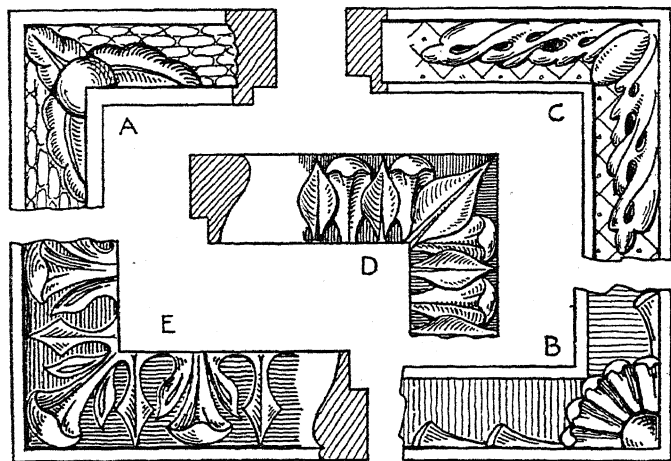


FIG. 6

projects themselves are easy to make. They will give a lot of good practice prior to undertaking more difficult work. The background on jobs of this kind need not be lowered very much, only about $\frac{1}{16}$ in.—enough to bring the pattern into sufficient relief to make a little modeling possible.

The design on the plant stand (Fig. 7) may be modeled by making from two to four cuts on each leaf with a shallow gouge, leaving the outer edges of the leaf high by cutting with a slicing cut from the edges

to the center. The round part in the center of each leaf group may be formed in a convex shape with the heel of the skew chisel, or by cutting it with a gouge held

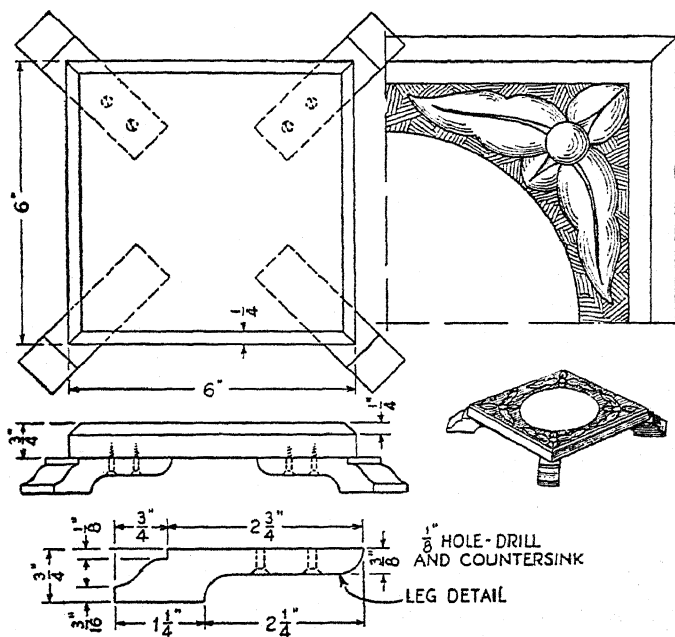


FIG. 7

in reversed position. The lines through the center of the leaf may be made with a veiner or V-tool.

Two designs are shown for the candle scone (Fig. 8). One is a tulip motif, while the other is an aster. If the aster motif is used, the leaves may be left flat and only the flower modeled. The center of the flower is convex. The petals are concave and are cut with a

gouge. The tulip pattern is modeled entirely. Round all edges of the flower, making the tulip slightly convex in shape. Use the skew and the extra-flats to do

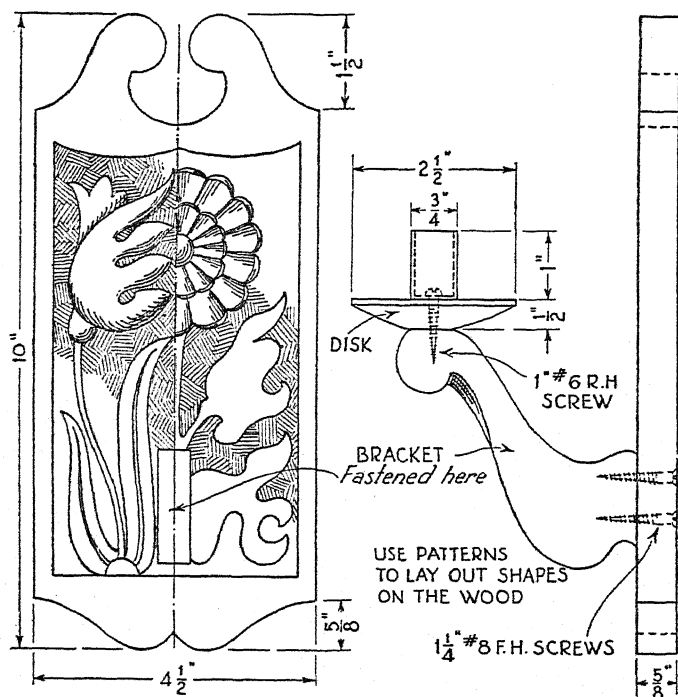
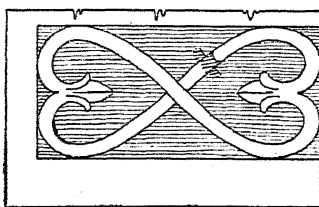


FIG. 8

this. The stem is convex but the leaves are slightly hollowed out with a shallow gouge. They are completed by making a line through the center with a V-tool.

The modeling on the handkerchief box (Fig. 9) is as simple as that on the other two projects just men-



OPTIONAL DESIGNS FOR
A HANDKERCHIEF BOX.
ABOVE, TOP OF BOX;
LEFT, SIDE; BELOW, THE
CONSTRUCTION DETAILS

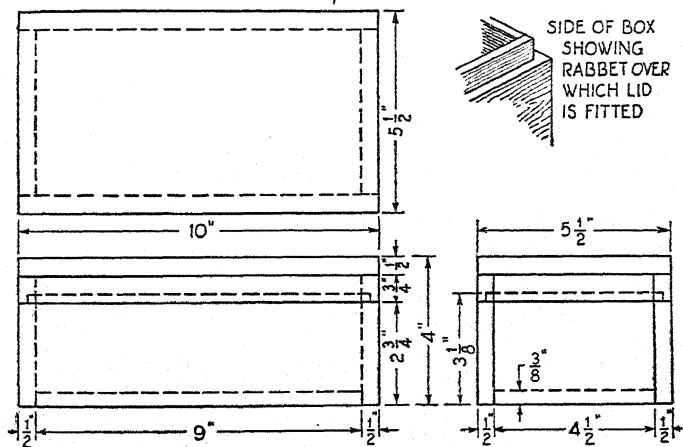


FIG. 9

tioned but there is more of it. The strapwork on the left should be slightly hollowed out with a gouge, as shown on the design of the side in cross section. The petals of the flowers are concave; the centers are con-

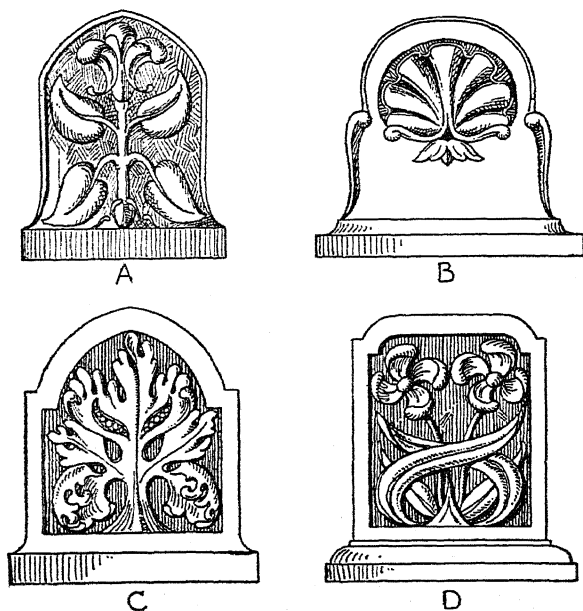


FIG. 10

vex. The design of the rosette at the right is a little more difficult, and may be carved in a number of ways. The modeling is indicated on the drawing but may be varied to suit the individual taste.

Most people who do wood carving will, sooner or later, want to carve a pair of decorative book ends. Designs for four different types are shown in Fig. 10.

A and C may be carved in oak, while B and D are more appropriate for carving in mahogany or walnut. The finer-grained woods, of course, may also be used for A and C. If carved in oak, the background should be cut somewhat deeper than if a finer-grained wood is used. On a design such as C, if oak is used, there

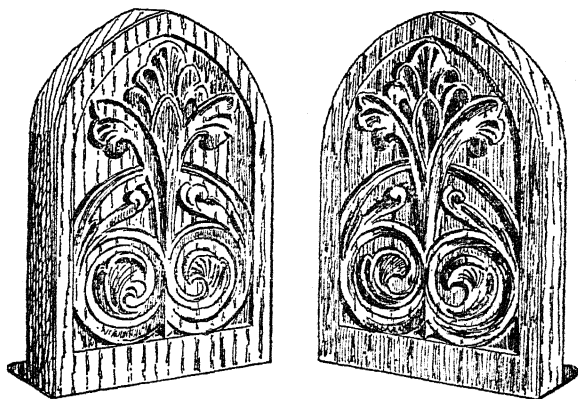


FIG. 11

will be less finishing with a veiner than if smoother woods are used because veiner lines do not show up quite as prominently against the more distinct markings of the oak grain. It should be noted that all of these designs have been thoughtfully planned to conform to the outline structure of the project.

In Fig. 11 is shown a pair of book ends which have been carved in oak. They illustrate still another step forward in the art of modeling. In this project, the veiner and V-tool have been used to give texture to the pattern after it has been modeled. (The stencil

pattern for this design is shown in Fig. 5, Chapter VII.) While this treatment would have been more noticeable on a finer-grained wood, still it helps to create interest in this design. The distinct markings characteristic of the grain on oak somewhat neutralize the effect of the veiner lines. These deft cuts with a veiner and V-tool give the modeling a texture and virility not otherwise possible. Machine carvings are often doctored in this manner to make them appear hand carved. A skillful workman can, in a few minutes, change the entire appearance of a dead-looking carving and give it life and a snappiness it did not formerly possess by a little touching-up of this kind. It is one of the tricks of the trade. Most of the carved furniture turned out at popular prices is, of necessity, machine carved. Some companies turning out great quantities of this stuff employ only one hand carver who does little more than doctor machine carvings. In many instances, if the work is well done, the deception is difficult to detect except by an expert.

Attractive boxes, like those shown in Fig. 12, are always in demand. They may be used as jewelry caskets, stationery boxes, vanity boxes for the dressing table, and a variety of other purposes. In the boxes shown at B and C, the sides and the lids are made of moldings shaped to various forms. The moldings may be cut to shape in long pieces with carving tools, and they may even be carved before the box is assembled. If the carving is done before assembling, it is best to leave the corners of the box to be carved after assem-

bling in order to match the design at the joints. The design at B illustrates several types of classical moldings, among them the famous egg-and-dart design. This design, alone, may be varied in hundreds of ways as

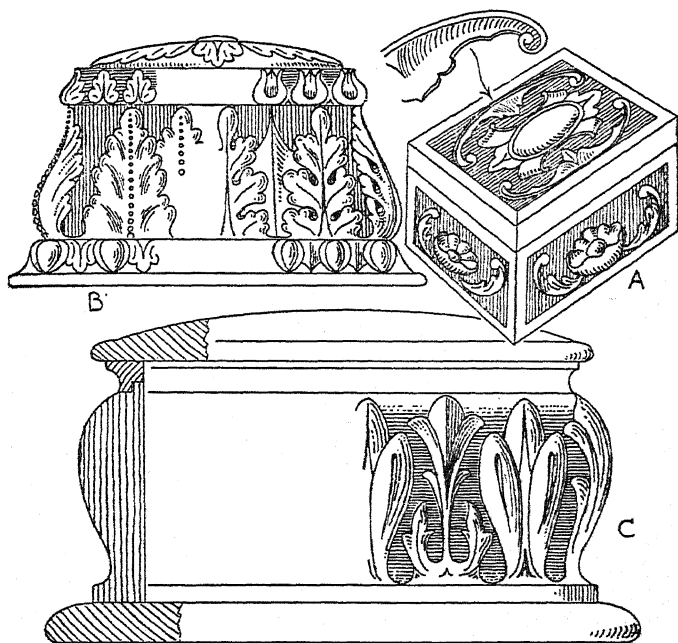


FIG. 12

may also the acanthus-leaf design, shown on the sides of the box. The design at C is simpler but just as attractive as the one shown at B.

There is no end to the types of patterns and the designs at one's command, once this style of carving has been started. In adapting leaves and flowers for

designs, the variety is infinite. With the addition of human and animal forms, natural and artificial objects of various kinds, the carver has ample material from which to choose.

Figure 13 shows a very simple panel illustrating the tale of "The Raven and the Pitcher." The skill re-



FIG. 13

quired to do simple things like this is not very great, and the idea has a great many applications. It should be possible for almost anyone to carve panels illustrating many of the popular fairy tales, Mother Goose rhymes, or folklore, which children love, for the little tot's room.

There is another type of carving sometimes known as wood sculpture, an example of which is shown in Fig. 14. Ancient Egyptian subjects make fine designs for this carving. Persian, Chinese, and other Eastern drawings are also sources of design. Museums supply illustrations of Egyptian and other ancient and foreign subjects at a small cost. Designs for more modern

work may be taken from magazines and current literature.

In arranging designs, symmetry and rhythm are essential, and the spice of humor helps. The design in Fig. 14, it will be noted, suggests a decorative pattern



FIG. 14

apart from the figures portrayed. The background in this panel can be punched with a blunt nail; this is a place where the use of a punch is legitimate for it helps to give a suggestion of the antique, which is desirable in this type of work.

Egyptian-type work of this kind is elementary in character. The portrayal of the subjects should appeal to children. To carve the panel in Fig. 14 proceed as follows: Leave in high relief the limbs of the figures and the donkey which are on the near side but cut

back considerably those on the remote side. The figures are next rounded over at the edges and shaped. Any lines such as the donkey's mane and the saddle or the men's hair and eyes can be carved with the veiner. The extent to which the modeling is to be carried depends upon the whim of the worker but a certain crudeness should be maintained.

Biblical scenes have an appeal for many people which no other subjects can create. It is difficult to imagine a person who would not be stirred by the sentiment expressed in the carvings of Alois Lang, of the Oberammergau Langs of Passion Play fame. Apart from their masterful workmanship, such scenes taken from the Bible will be difficult to surpass for their emotional appeal.

Symbolism as expressed in art is identified with religion wherever man worships. No greater art has perhaps ever flourished than that exemplified by the great Gothic cathedrals of medieval times. Gothic carving is beautiful. Many of its elements have individual significance as, for example, the trefoil which symbolizes the Trinity. While the Gothic is nearly always associated with things ecclesiastical, its possibilities for adaptation to domestic arts and crafts have probably never been fully realized. It contains motifs which might easily be worked out for the carved panel of a chest, the doors of a cupboard, or the apron of a long refectory table. If such carvings were used for these purposes, the tracery would perhaps have to be scaled down considerably; the cutting should not be as deep and the tracery should be a little narrower. The idea

is the important consideration however, and it only awaits someone to make the proper use of it.

In Fig. 15 are shown a number of suggestions for the use of various motifs. From these the cabinetmaking carver should be able to decide upon a number of attractive things to build for himself or for sale. The interior of a writing desk (A) has a small door on which a sunburst has been carved. This was a favorite motif on desks and other cabinet furniture made during the 18th century. The carved apron (B) would be quite appropriate for a skirt below the lowest drawer on this same desk. It could also be used on the front of the seat stretcher of a Chippendale chair or on a lowboy.

The cupboard (C) in Fig. 15 illustrates a different type of carving. A cupboard such as this, which would naturally be made of some domestic cabinet wood like pine, oak, or poplar, should be treated with a less refined type of carving than that used on a Chippendale desk or chair made of mahogany. The latter types of mahogany pieces need proportions, outline enrichment, and various other refinements which would require more delicate modeling and careful planning than this cruder piece. Peasant carving (and we classify early American Colonial as such) has, and very properly so, a simple directness which gives it an appeal that is not found in the more elegant masterpieces of the artist-craftsmen of the 18th century. Their furniture exemplified the pinnacle of perfection so far as craftsmanship is concerned, and in most respects it has never been surpassed. The simpler work of earlier times

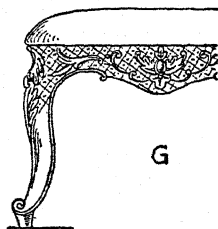
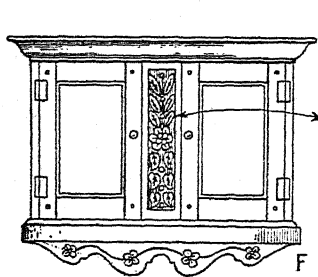
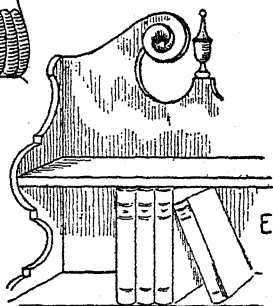
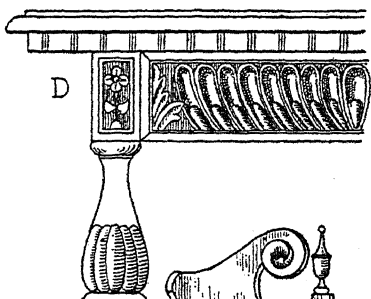
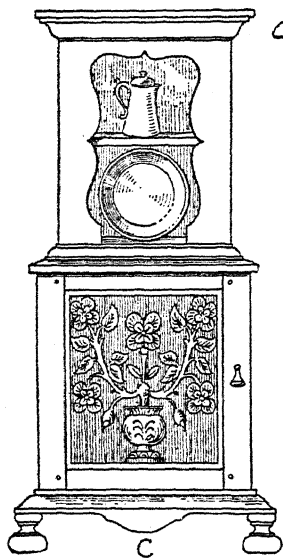
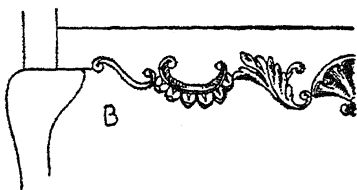
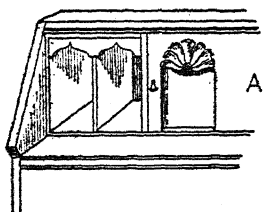


FIG. 15

holds for most of us an appeal which is entirely apart from the admiration we accord the finished craftsmanship of the more elegant periods.

The bookshelves (E) and the hanging cupboard (F) belong to this peasant classification. For the simple,

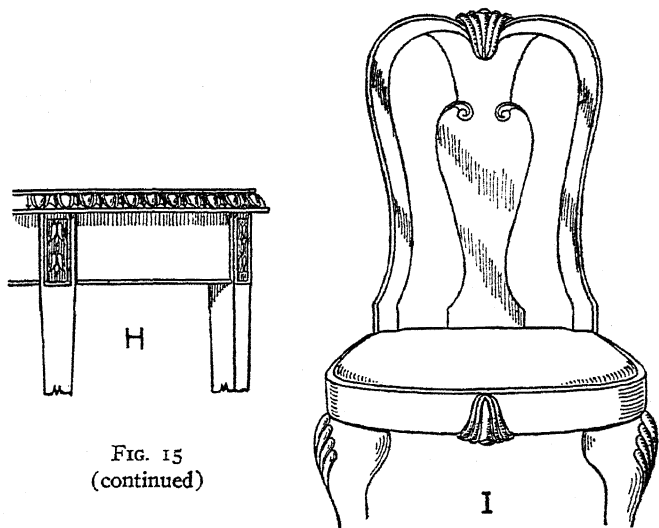


FIG. 15
(continued)

unostentatious cottage, they are ideal furniture. Pieces such as those shown at A, B, G, H, and I belong in more pretentious homes, though a limited number of such pieces are not altogether out of place in the more modest house.

The Jacobean design (D) illustrates a flamboyant type of carving found on most of the better-class furniture of the 17th century in Europe. One must accord the work of this period a great deal of admiration.

The proportions of the furniture, used in the stately halls of England and the Continent, were generous to conform to the great size of the rooms into which it was placed. There were fewer pieces but these were stanchly built and if carved or decorated, the treatment was rugged and generous. The nobles of this time enjoyed life in a grand manner, and their furniture exemplified their mode of living.

The carving on the Queen Anne chair (I) illustrates a motif both distinctive and characteristic of this type of furniture. The carved shell, in one form or another, was found on most of the pieces of this style, if they were carved at all. The motif is both appealing and appropriate. This type of furniture has qualities which have made it popular with almost all classes of people to this day. The pieces of this style were almost without exception built of walnut in the better grades of furniture and had a simplicity and comfort which won for them high favor.

Perhaps never again will decorative art reach the pinnacle of elegance it attained during the reign of Louis XV of France. Every artifice that the ingenuity of the greatest talent, supported by a munificent monarch and his pampered court, could devise was utilized for the aggrandizement of the home and personal belongings. The most remarkable and lavish *objets d'art* that it is possible to imagine were turned out. Rare woods, new methods of decoration, new materials never before used for the purpose—all were tried with various degrees of success. Many of the resulting objects exceeded the limits set by good taste but so far

as workmanship and ingenuity were concerned, they have probably never been excelled. The carving on the furniture and accessories was no exception to this rule. In richness and quantity it equaled and often surpassed anything that had ever been done before or since. The small Louis XV stool (G) in Fig. 15 is a mere suggestion of the work of this period. The carver who wishes to do so may find many more examples in museums and libraries.

Once the craftsman has done considerable carving, it will be worth his while to make frequent visits to museums where carving of various kinds may be examined at first hand. Before learning to carve, this may not do him much good because he will not have learned what to look for in the masterpieces exhibited. The various techniques employed will not make much of an impression on him and important details will entirely escape his attention. In carving, as in all things requiring skill, one learns by doing. Coupled with a habit of observation which must be acquired for the particular type of work in progress, talent gained along these lines will be sure to achieve success.

For the craftsman who wishes to do work of fine quality, and at the same time put his ability to some practical use, the plans for a Chippendale lowboy of excellent design (Fig. 16) have been included in this chapter. The lowboys built by Chippendale, and other cabinetmakers who imitated his work, are numbered among the finest and most desirable examples of 18th century cabinetwork. Besides being decorative, they

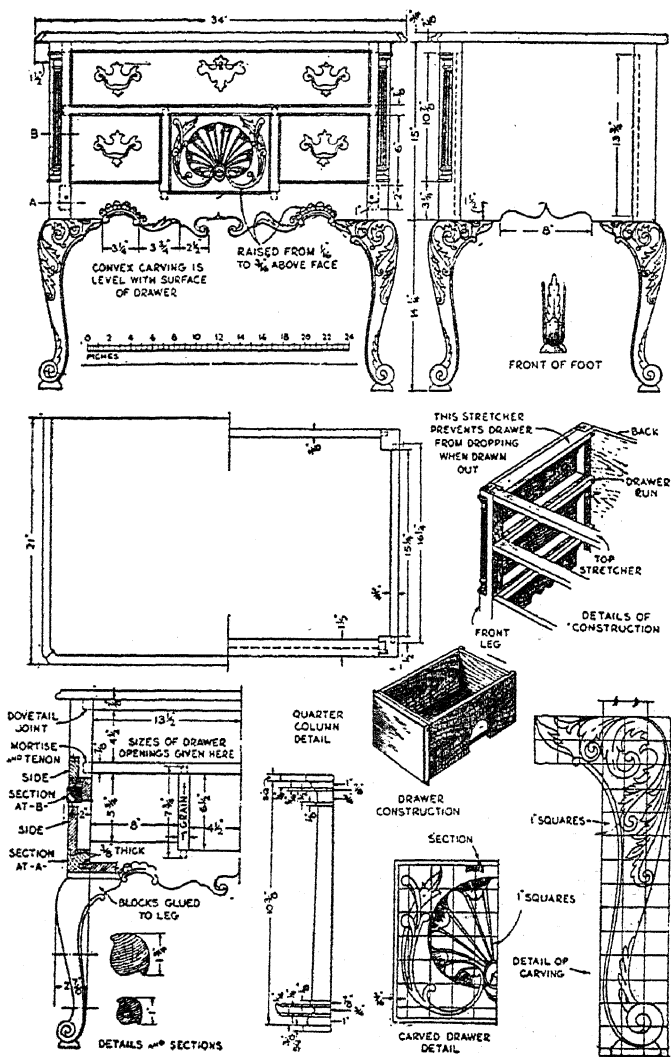


FIG. 16

are admirably suited to a number of practical purposes.

It is supposed that lowboys were originally used as dressing tables. Perhaps this is true, but a lowboy of Chippendale design has a skirt so low that sitting close to a mirror hung above it would be next to impossible. Earlier lowboys of the William and Mary or the Queen Anne styles were used as dressing tables; the skirts being highly arched in the center to give adequate leg room. Pieces of the type illustrated, however, are better suited to other purposes. They may be placed in a hallway under a mirror, used as a chest for the family silver, or as a serving table in the dining room. They may also be used in the living room or library.

The drawings show a design fit to grace the finest home. It has traces of rococo, which Chippendale adapted from the Louis XV style and to which he was apparently quite partial. The shell of the center drawer is a striking, though tasteful, decorative element and constitutes the principal center of interest.

On mediocre reproductions, carving such as that found on the skirt and small drawer front is often carved in quantities from a master pattern on machines; it is cut out on the jig saw and tacked and glued to the surface. This of course cheapens the work considerably and is to be deplored from the standpoint of artistic merit. Such methods will be strictly avoided by anyone who takes pride in his work. Even worse than this practice is the use of pressed carvings made of some composition material that are applied to a piece of furniture.

It is hardly necessary to state that the good workman will despise the cheapening of his own work with this so-called carving. In the writer's opinion, the addition of trimming of this kind will cheapen any piece of furniture which, if it is well constructed and made of good materials, deserves a much better fate than to be decorated like a Christmas tree.

The carving on the lowboy should be cut from the solid wood. On the skirt it is raised about $\frac{3}{16}$ in. by lowering the background that much. The convex surfaces of the carved shell on the drawer front are level with the flat part of the drawer surface, while the kidney-shaped niche in which the shell reposes is arched in to a depth of at least $\frac{3}{8}$ in. The foliage outside of the shell is raised about $\frac{3}{16}$ in. above the drawer surface. This means that it is necessary to carve the drawer front in three levels. First, the design of the foliage outside the shell is drawn on the drawer front, and the entire remaining background is lowered to a depth of $\frac{3}{16}$ in. The leaves may then be modeled. Next, the design of the shell is drawn or traced. Then the arched niche is cut around it, after which the shell itself is carved.

The apron is jig-sawed to shape before being carved. As to the shaping of the legs, the proper procedure for this type of work is detailed in Chapter X. The foliage on the knee may be raised anywhere from $\frac{1}{8}$ in. to $\frac{1}{4}$ in., though an average depth of $\frac{1}{8}$ in. is more usual on work of this kind.

Very often the fluting on columns such as are found here is carved by hand as is the molding around the

top. This phase of the work is covered in Chapter IX.

The drawings contain sufficient information to enable an experienced amateur woodworker to construct the piece. It is one that the advanced craftsman particularly should enjoy building because of the opportunity to match his skill against that of the great cabinetmakers of the past.

An excellent project for the amateur wood carver is a fireplace bellows, shown in Fig. 17. The materials needed are very inexpensive, the finished project is exceedingly attractive and useful, and it is one that has a rather good sale value if the craftsman is inclined to turn the results of his labors into cash.

When every home was heated by means of fireplaces, bellows were considered an indispensable accessory of the hearth. Most modern homes have at least one fireplace, and a beautifully modeled bellows such as this will be a real asset. Unless a newly built fire is started with plenty of dry kindling, it is often difficult to make it burn. With a bellows, even green wood may be blown quickly into a blaze.

The bellows themselves are not difficult to build. The modeling also presents no unusual difficulties, though it may take a day or two for a good amateur to do the carving.

Two pieces of stock are required, measuring $\frac{7}{8}$ in. x 11 in. x $22\frac{1}{2}$ in. (Fig. 18). Walnut or mahogany is excellent material for this purpose. If a cheaper wood is desired, well-seasoned heartwood of poplar may be used. A piece of kid leather, the kind used for manufacturing gloves, should also be purchased, together

with some medium-size upholstering tacks. The kid leather may be bought at leather supply houses or stores which specialize in furnishing shoemakers with

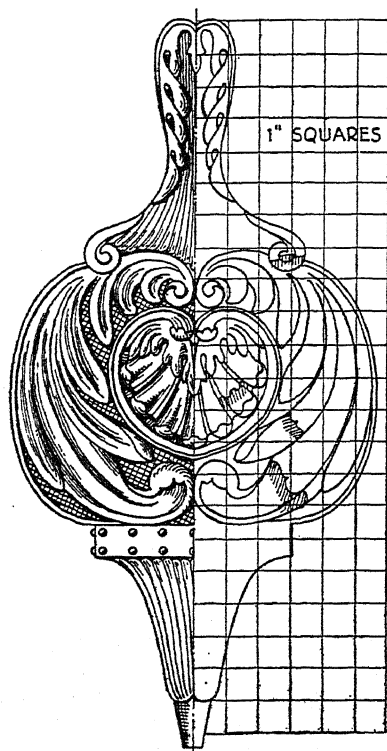


FIG. 17

their materials. It is possible to purchase the skins in various colors, and one should be selected which will blend well with the complete color scheme.

Make a full-size pattern (Fig. 17), using 1-in. graph

squares, and lay out the shape of the outline on the wood. Save this pattern to lay out the design for the carving. A stencil pattern for the carving may later

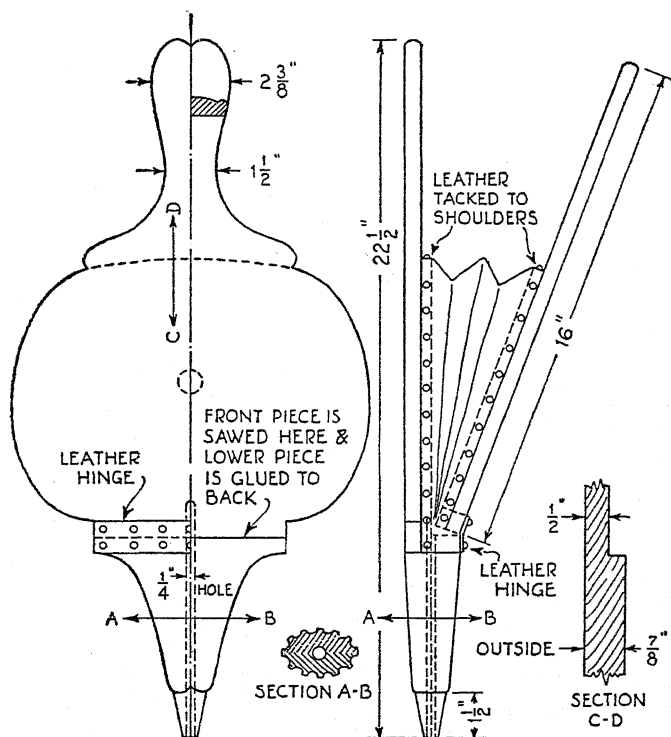


FIG. 18

be cut from the outline pattern. How this may be done will be more fully explained in the following chapter.

Cut the back and front to shape on the band saw. Match the front and back accurately when truing the

edges so that the leather may be properly fitted. Next, saw the front piece into two parts where indicated in Fig. 18, on the front elevation. Glue the lower part which forms part of the nozzle to the back. Bore a $\frac{3}{4}$ -in. vent hole into the middle of the back for the valve. The valve is made by tacking a piece of leather over this vent hole on the inside of the back.

Cut the shoulders below the handles on both pieces.

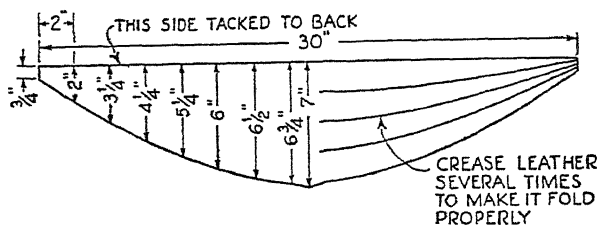


FIG. 19

This may be done with a routing attachment on the drill press, if one is available, or by hand. The handles themselves are only $\frac{1}{2}$ in. thick, and $\frac{3}{8}$ in. of the stock is removed on each piece to form the shoulder to which the leather is later tacked and glued.

Make the stencil pattern for the carving. Lay out the designs on the wood and carve. Remove the largest background areas first. The modeling need not be very deep, and therefore the design is not raised very high. Probably no two men would interpret the design alike, so there is no necessity of explaining the modeling for each element. A few indications of the cross sections have been made on the drawing. Carve the nozzle after it has been bored and after the leather hinge has been

fastened. It should, of course, be shaped to the proper form before the bellows are completely assembled.

Cut the leather to the shape shown in Fig. 19. It should be glued to the bellows, as well as tacked, to make them air-tight. First fasten the leather hinge. Open the bellows when tacking the hinge at the sides. Begin tacking the big piece of leather which incloses the air chamber at the center of the top first. Tack it to the back, then to the front. Apply a little glue at a time, as the tacking proceeds. Use a household cement which may be purchased in tubes and adheres to leather as well as wood. This is better than wood glue for this purpose.

To finish the bellows it is well to choose a color for the background. In fact, the carving may be colored and, if one has some knowledge of color harmony, very interesting schemes may be worked out. The bellows will also be attractive if stained in only one color, or the background and the carving may be varied by gilding with gold leaf or a good grade of dull gold bronze paint. A hole may be bored through the back handle near the top for hanging the bellows. The handles may be prevented from opening, when not in use, by tying them with a leather thong.

CHAPTER VII

DESIGNS AND PATTERNS

ANYONE who does wood carving will need to learn how to make his own designs and patterns. In Chapter VI the need for learning to draw was stressed, and in order to be able to make one's own patterns for carving, the ability to draw is essential.

It is quite possible, occasionally, to procure full-size patterns of designs and projects which one wishes to carve. There are numerous books and magazines on the market which, from time to time, give such patterns or make provision for the interested person to purchase them in the form of drawings or blueprints. While this is one way of getting designs, it is one which handicaps the carver considerably if he does a great deal of work.

There are also various devices on the market, such as a pantograph, by means of which drawings may be reproduced from books, magazines, or other sources and enlarged to any convenient size demanded by the work in hand. The pantograph is a simple instrument composed of a number of crossed rods, joined together to form a system of levers, which by shortening some and lengthening others, the design may be enlarged or reduced as required. At one end there is a pin or tracer which if made to move over the lines of a design will

result in a reproduction of the same motion, but at a determinable ratio, at the other end, to which a pencil has been fastened. The design traced in this manner is rather faint, but it may be touched up readily by going over it with a soft lead pencil. It may then be transferred to the wood with carbon paper.

Still another method of getting designs, if one must copy them, is by means of graphs. Home-workshop magazines reproduce designs in this manner for the convenience of the person who wishes to make the things shown. Originally, these published designs were drawn at a much larger scale than shown on the printed page. Because of the high cost at which space in a magazine or book must be figured, it is seldom possible to reproduce designs at full size. Many factors go into determining the amount of reduction of a particular drawing, such as the number of designs that must be shown in a particular magazine article or chapter, the relative importance of the design on a given project, and the amount of detail in the design, etc. So instead of reproducing the design at the size it was originally drawn, the editor does the next best thing. He has the design drawn on graph squares, and when it is reproduced at a smaller scale the graph squares are also reduced, keeping the same ratio to the whole design. The original size of the graph squares is always given on the reproduction so that it may be redrawn at the scale of the original drawing by anyone who wishes to reproduce the design. The same design may just as readily be made larger or smaller than the original by the same method.

In Fig. 1 are shown the various steps through which one must go to reproduce a design by the graph-square

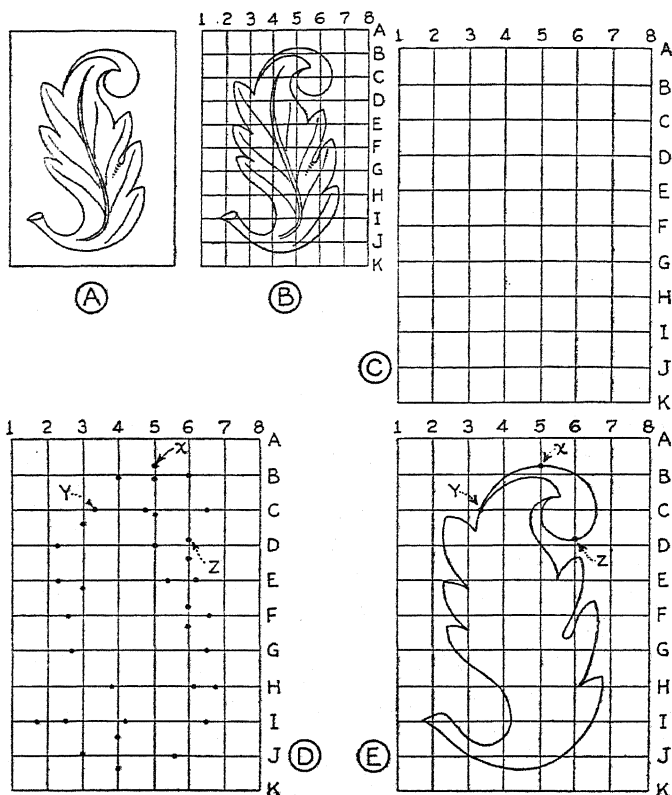


FIG. 1

method. At A is shown the reduced reproduction of the published design that is to be copied. The motif is a simple leaf. The first step, when one wants to reproduce the design, will be to number and letter the

horizontal and vertical lines on the published design as shown in B. Next, tack a piece of drawing paper of suitable size to the drawing board and, with T-square and triangle, draw squares, increasing or reducing the size of the squares in the proper ratio to get the desired proportions as shown at C. It will even be possible to vary the proportions of length to width of a design by increasing the width between the vertical lines more than that between the horizontal lines, or vice versa. By this expedient a square pattern could be stretched out to make it a rectangular one in order to make it conform to a panel of that shape. Each line on this paper should then be numbered and lettered to correspond to the numbers and lettering on the published drawing. In other words, there must be as many vertical and horizontal lines on the paper as there are on the master drawing, but each square that is thus formed must be larger or smaller depending upon whether the design to be drawn is to be larger or smaller than the printed design.

The places through which the lines are to be drawn are now indicated as accurately as possible by making a series of dots on the paper as shown at D. For example, the point X, through which the top of the leaf passes, is located on line 5, just above horizontal line B. The point Y is located on horizontal line C to the right of line 3. The point Z is located on line 6 above D.

When all of these dots have been made for the entire design, lines may be drawn through them to make the pattern as shown at E. It will be found, after the

lines have been drawn, that many of them will have to be corrected slightly—to improve the curves or make other desirable changes. The design is now ready to be transferred to the wood for carving. If so desired, the pattern may be shaded to indicate the form to be taken by the modeling.

For the carver who has had considerable experience

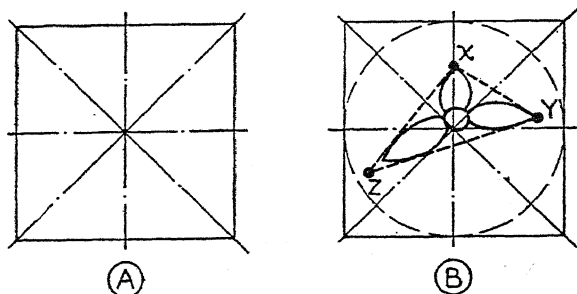


FIG. 2

in drawing and thinks it unnecessary to reproduce the published drawing exactly, there is a simpler method. This method is shown in Fig. 2.

It will be found upon examining most designs that the important elements of which they are composed may be bounded approximately by various simple geometric figures, such as the circle, the oval, a triangle, a square, or a rectangle. Such figures may be drawn lightly over a published design and then reproduced in the proper proportions on the pattern. The important points should first be located and connected with lines as at X, Y, and Z, shown at B in Fig. 2. After this, the design may be quite faithfully reproduced. It

will also be of great help if center lines are first drawn, as shown at A. It is a little easier to make changes in the original design by using this method.

While all the methods given above have points to recommend them if a design is to be copied, most of them are of small value if the carver wishes to draw his own designs. Originating and drawing one's own designs is by far the most desirable procedure. It is urged that everyone who does carving should train himself at the same time to originate his own designs. It is perfectly legitimate to copy good work while learning to carve, and it is perhaps one of the quickest ways of acquiring knowledge of different styles of carving. But as one acquires skill and becomes more adept, it is better to let one's individuality express itself in original work whenever possible. It is in this manner that the wood carver grows and rises above ordinary accomplishments.

Some people, it is true, never acquire the ability to design original work. They have not the proper talent. Many of these choose to copy good work which some one else has designed rather than to originate poor designs of their own. In such cases copying is of course to be commended. In Chapter XII will be given a number of sources to which one who can and wishes to originate his own designs may turn. The aim of the present chapter is to show how designs which have already been prepared may be applied to the wood for carving.

Those wishing to do original work will naturally desire to become familiar with some rational method

of procedure. On furniture and other objects suitable for carving, the logical places to put carving are comparatively large plain surfaces, such as doors of cabinets and cupboards, drawer fronts, table aprons, chair backs, long stretchers, panels, box tops, and the like. Such locations, in general, may be classified into three distinct groups: The carved surface will either be in the form of a border which is a long narrow strip; a panel which is a large flat, plain surface; or an irregularly shaped surface such as a carved molding or a cabriole leg.

There are several simple rules which will be helpful in designing the carving for spaces falling under each of these classifications.

By borders are meant members such as long narrow table aprons, drawer fronts, picture frames, friezes, bracing rails of various kinds, etc. Whenever elements such as these are to be carved, the design should be dynamic, that is, it should have movement, causing the eye to move from one end of the border to the other without too great an effort. There are two methods by which this result may be accomplished.

The first is to give the principal elements of which the design is composed a strong dominant movement from one end of the border to the other, with all subordinate elements also giving an impression of movement in the same general direction. Any contrary movement, that is, from one side of the border to the other, must be of minor importance and considerably subdued so as not to set up a contesting motion tending to destroy the forward movement.

The second method by which a forward motion may be given to a border design is by carving on it a series of dominating elements, all of which are alike, with minor connecting elements which insure the continuity of movement. The eye has a strong tendency to jump from one element to another which is identical or very similar. If the gaps between a number of such elements are bridged with minor elements which are also alike, a strong forward movement is immediately established. The border designs shown at D and E in Fig. 6, Chapter VI fall into this class. Notice on these borders the important dominating element connected to another one just like it by a number of similar minor elements. While the main, or inceptive, axis of each of these elements is across the border, the strongest movement of the border itself is forward because of the strong inclination which the eye has to follow an arrangement of this kind.

There is greater choice in the arrangement of the elements in the second group, which we have classified under the heading of panels. For this very reason however, it is slightly more difficult to make this arrangement effective. One has a larger surface to work with and, in order to fill this surface in a way to make it arouse the pleasure of the beholder, it requires some thoughtful planning. Good art is seldom the result of accident. Neither is effective arrangement of the design elements in a panel.

If the carved panel is square or round, the most important element of the design, or in other words the center of greatest interest, should be located in the

exact center of the panel, with minor centers of interest grouped around it in some balanced and uniform arrangement. Minor centers of interest on a square panel may be located in each corner. This is the arrangement of the panel shown in Fig. 5, Chapter VI. In this panel, the large leaf is located in the exact center and forms the center of greatest interest; minor centers of interest are located in each corner. It may easily be seen how this same design could be used in a round panel. In the round panel, Fig. 8, Chapter IV, the four inceptive axes run from the center of the panel toward the outside, being spaced equal distances apart. The center of interest is, however, in the middle.

When the panel is rectangular, oval, or some similar shape, and the panel is to be placed in a vertical position, the principal center of interest may be above or below the center of the panel. While it is possible to put it in the exact center, such treatment is not nearly as effective as if it is put about two thirds of the way from the top or two thirds of the way from the bottom, or somewhere between these points and the center. Just which of these positions the principal ornament should occupy depends a great deal upon the type of project on which the carving is to be done. In the design of the carved book ends, shown in Fig. 11, Chapter VI, the principal center of interest is near the bottom but a minor center of interest has been established at the top. The treatment, in this particular case, helps to make it appear as though there were additional weight at the bottom of the book ends—a desirable feature in such a project.

On the fireplace bellows, Fig. 17, Chapter VI, the center of greatest interest is at the top of the carved shell, which is located slightly above the center of the mass of the design. This is also the treatment in the book-end designs shown in Fig. 10, Chapter VI. It is probably the most effective of the two methods, though a great deal will depend upon the kind of project on which the carving is to be used.

The carved panel on the magazine rack, Fig. 9, Chapter V, is nearly square, but because of the impression of being rectangular, which the assembled project makes upon one, the center of interest appears not to be in the center of the panel where it actually has been placed. Factors such as this will have to be taken into consideration when working out a design.

When a rectangular-shaped panel is placed horizontally, the treatment will be somewhat different. In this case it is usual to concentrate the center of interest at the center of the panel if there is only one major element; or to have two centers of interest of about equal importance at the ends of the panel so they will balance. Several other treatments are possible. Very often, when the center of interest is concentrated at the center of the panel, there are minor centers of interest of almost equal importance, balancing each other on either side of the principal center of interest. At other times, minor centers of interest are concentrated at each corner of the panel.

Whatever the arrangement, one rule must always be observed in a treatment of this kind, and that is to keep the design in balance, to avoid greater weight at

one end of the panel than there is at the other. Most arrangements of this kind are brought about by balancing identical elements at equal distances from the center. This is known as bisymmetrical balance. Another method, known as occult balance, is brought about by placing a large center of interest just to one side of the center of the panel and balancing it with one or more minor centers of interest at a greater distance from the center at the other side. Occult schemes of balance are more difficult to handle than bisymmetric arrangements but are very effective if correctly handled. In the Louis XV period, there was widespread use of occult balance in all forms of art.

The design of ornament, and its proper arrangement, is a little more difficult for irregularly shaped surfaces such as a cabriole leg or a free figure, because here one is dealing with three dimensions instead of only two. The surfaces upon which the ornament is to be carved is not flat, and the points of concentration must be located at the most important places to be effective. For example, the points of concentration of carved ornament for a cabriole leg is usually at the greatest bend of the knee and at the foot. It would be a mistake to put this point at the sides of the leg. In modeling a free figure, such as a human form, the point of concentration will naturally be at the face of the figure.

Because of the varied surface and outline structure of such figures, it is nearly impossible to make definite rules for the placing of ornament which will apply in every case. Each project of this kind will present its

own problem, and about the only rule that can safely be made is to say that the greatest point of concentration, or center of interest, should be placed at the most important point on the surface.

For all arrangements of ornament, whether they are to be placed on flat surfaces or otherwise, the design of the decoration or carving will have to conform to the outline structure of the surface upon which it is carved. In everything useful, the design of ornament must grow out of structure, and conform to it. Decoration is not an end in itself but a means to an end. Its purpose is to give emphasis, to heighten interest, to add elegance, or to achieve some similar effect. It must accomplish its purpose without destroying structural lines or weakening them.

Once a design has been drawn, there is always the problem of how it may best be transferred to the wood for carving. Naturally, when working up an original design, it will be drawn full size. There may have to be several preliminary studies made before the final drawing of the design. These may be made as roughly as desired, so long as they give sufficient detail to permit the idea to take concrete form. A rough sketch, or two, at first is enough, but once the idea has taken concrete form, the drawing must be made at full scale, either on the wood itself or on some kind of pattern from which it may be transferred to the wood.

When only one carving is to be made of a single design, it is often possible to make the drawing directly on the wood which is to be carved, or to transfer it by means of carbon paper. There is, however,

a much better method than this and one which is almost universally used by wood carvers. This is to make a stencil pattern of the design. It is a procedure that has many features to recommend it. In the first place, it is possible by this means to transfer the design to the wood very quickly, and secondly, the stencil is very durable and may be used many times.

In Fig. 3 is shown a stencil pattern for a tulip panel for flat-surface carving. This particular one is a half pattern and it must be turned over to draw the other half of the panel when transferring the design to the wood. Sometimes it is necessary to make only a quarter pattern of a design, which would be the case if a stencil pattern were made for the design shown in Fig. 8, Chapter IV.

For most purposes, stencil patterns may be made from ordinary drawing paper. Such a pattern may be used many times before it is worn out. Where greater durability is essential, as in the case of a pattern which is to be used hundreds of times, it should be made of a flexible cardboard or pressboard. Some manufacturing companies which use a design a great many times may even go to the expense of making patterns from thin sheet metals.

A pattern which will only be used on a flat surface may be made of a fairly stiff pressboard or cardboard, and if it is shellacked, it will last for a long time. Where the design must be transferred to a curved or irregular surface, such as a cabriole leg or a turning, the material from which the pattern is made must be quite flexible so that it may be easily bent without

breaking. Figure 4 shows a pattern for a cabriole leg with a ball-and-claw foot and carving on the knee. A pattern such as this must also be made somewhat longer, and perhaps wider, than the original drawing of the design because as it is bent to conform to the shape of the leg, the curved surface along which it is bent will naturally be longer than a straight line drawn from the top to the bottom of the leg. The pattern must therefore be cut to fit exactly the shape of the object upon which it is to be transferred, and some of its elements may have to be lengthened or shifted somewhat from the ones in the original design.

Stencil patterns such as these are usually cut out with a very sharp knife. Some carvers do a lot of the cutting with carving chisels.

To make a stencil pattern, first draw the design on the cardboard. Then mark the parts to be cut out. Plan to cut the pattern in a way so that every element of the design is connected to some other element or to the sides of the pattern; avoid leaving any long ends or large parts unconnected by the little links which hold the pattern together.

On a pattern in which the design elements are rather large, as in Fig. 3, it is not necessary to have so many links as on a pattern like the one shown in Fig. 4. Fairly large areas may also be cut out on patterns of this kind; in fact, on Fig. 3 just about all of the background has been cut out. A pattern such as this is easy to "true up" after the design has been transferred to the wood. By true up is meant connecting the lines where spaces have been left by reason of the links,

and correcting any lines or curves which are not as they should be.

A pattern such as the one in Fig. 4 does not have its background cut away. Instead, only small narrow

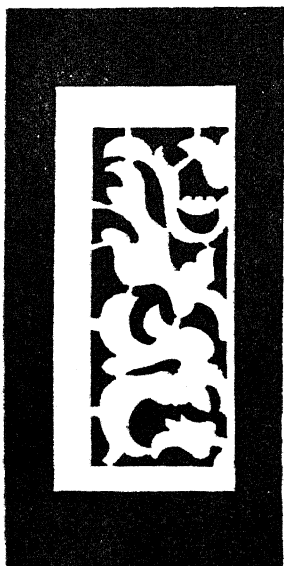


FIG. 3



FIG. 4

lines are cut away along each element of the design. The holes are fairly short and there are many links because of the constant change in direction which the design takes. As a general rule, only the outlines of the design elements are provided for in the stencil, and the lines of the modeling are left to be drawn in afterwards. To attempt to provide for a great many of the lines indicating the modeling would make a pattern

like this one too complicated, and it would be that much more difficult to true up after the design had been transferred to the wood.

The more carefully a design has been transferred

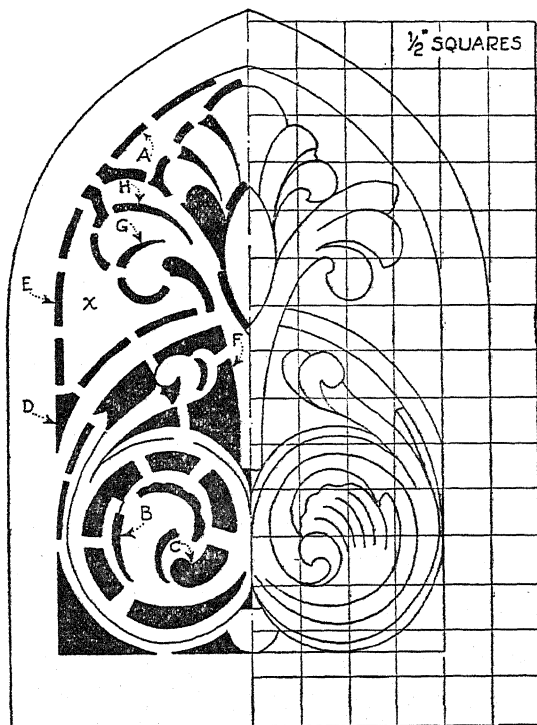


FIG. 5

to the wood, the easier it will be to carve. Therefore cutting a pattern should require considerable thought. After it has been transferred to the wood, the truing up should be done carefully.

In Fig. 5 is shown a pattern for the carved book ends, a drawing of which also appears in Chapter VI, Fig. 11. On the left-hand side of this pattern is shown a plan for making the stencil pattern, the shaded parts of which should be cut out. At A and E are the narrow slits which are usually cut where long unbroken lines appear. At D is shown the method of cutting a corner where two lines meet or intersect. F shows a rather large section which may be cut out at this place because all of the members on each side of it will remain securely linked together, and the pattern will be easy to follow. One might cut out the entire section marked X if it were not for the parts marked G and H. The elements remaining thereabouts might be left with insufficient support if X were removed altogether. At C is shown the round terminus of a section of the background, and the proper method for cutting it. While the stencil for this design may be cut as shown, there are other ways of cutting it and the plan illustrated need not necessarily be strictly adhered to. The graph pattern of the design is given on the right of Fig. 5 for the convenience of anyone wishing to carve these book ends.

CHAPTER VIII

PIERCED CARVING

IN THIS chapter we will consider a very different type of carving. In all the types that we have studied thus far, every one had a background which had to be taken into consideration, and the background treatment was of almost as much importance as the treatment of the design itself. In pierced work, the background is entirely removed. The carving is thus brought into bold relief against the dark shadow which forms its background. In some cases this kind of treatment results in a lacy effect, at times almost gossamer in its properties.

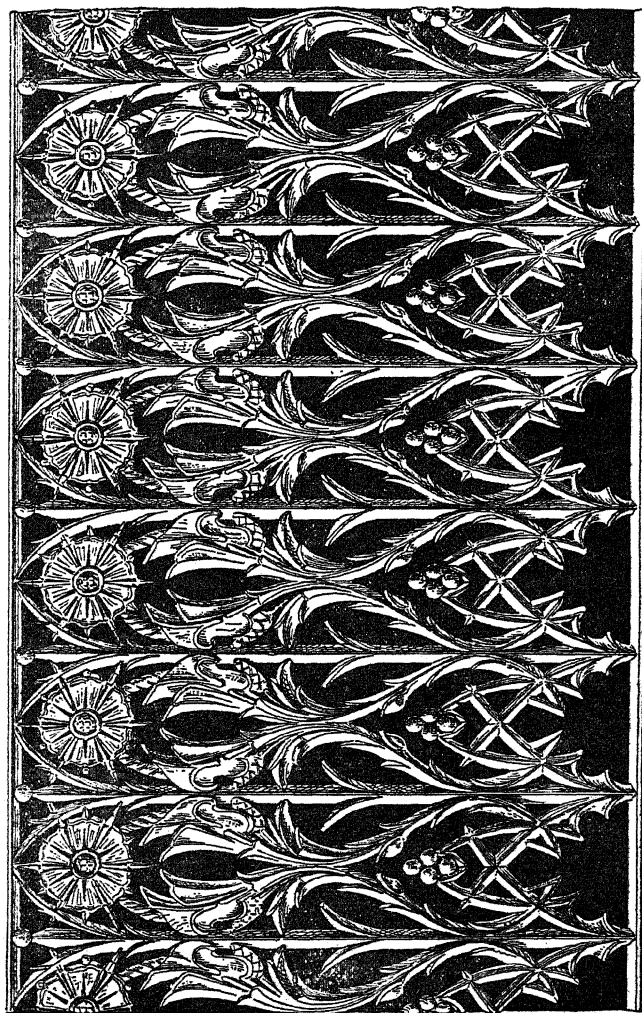
A great deal of the beauty of pierced carving depends upon the care with which the units comprising the design are formed. Each element forms a distinct profile, and defects in a profile brought into sharp relief against a darker background are much more noticeable than those which occur where the background is of the same material. In pierced work, all rough or jagged edges must be carefully removed. When finishing work of this kind, it must be observed from a distance and from all angles so that all defects will be more clearly revealed. The design must first be drawn accurately upon the wood, then trued up before the background is sawed out. It is a great mistake to ex-

pect to repair defects after the carving has been done; with this in view, take proper precautions to insure success at the beginning of the work. This is true to some extent of all carving, but especially so in this field. The need for such care is shown clearly in Fig. 1.

In the carving illustrated in Fig. 1, there is considerable surface texture brought about by the use of various finishing tools, such as the veiner, fluting tool, and the narrow gouge. This piece of work presents a bolder, more vigorous effect than many examples of pierced carving. It is a masculine, rugged motif. Notice in the leaves just underneath the rosette the boldness of the cutting, the distinct markings left by the tool. In the rosettes themselves, observe what a wonderful surface texture there is on the petals. The clustered beads, lower in the carving, though they give the impression of being round, are not too smoothly finished. The same is true of the twisted stems near the top. Throughout the piece, there is a studied and deliberate lack of smoothness which gives the work a virility that is admirable.

The motif shows an exceedingly fine conception of design and proper application to the medium in which it has been executed. The design would be suitable for the railing on a staircase or a balcony. It might be used for a radiator cover or for a grilled opening above a beautiful doorway. It would be handsome on grilled doors to inclose bookshelves in a library.

While this and similar examples of pierced work give one the impression that they belong in a church or chapel, the effect may easily be dispelled for domestic



(Courtesy American Seating Co.)

Fig. 1

purposes by making only minor modifications in the designs.

To do this kind of carving, the design is first transferred to the wood and carefully trued up. Then the background is sawed out with the jig saw (or a coping saw). In some cases the background is removed by using a high-speed router, the cutters of which revolve at speeds varying anywhere from 5,000 to 10,000 revolutions a minute. This method is of course more rapid than when a jig saw is used because the blade need not be adjusted for each individual opening, as is the case with the jig saw. Where power tools are not available, a coping saw may be used, especially on small jobs. A design such as C in Fig. 3 should be sawed out with a jeweler's saw, using a fine-toothed blade. In still other cases the background is removed by boring or drilling, which would be the procedure when doing a leg like D in Fig. 2.

After cutting out the background, the edges are trued with files and sandpaper. These operations may have to be repeated again when the carving has been done.

The material on which pierced carving is to be done must be more carefully chosen than for other kinds of carving which we have thus far studied. Because a great deal of the material is cut away, thus removing much of the support which other forms of carving have, the wood used should be fairly hard and close and straight-grained. Softwoods and brittle material should not be used. Genuine Cuban mahogany of the heaviest kind, and having a fairly straight grain, is

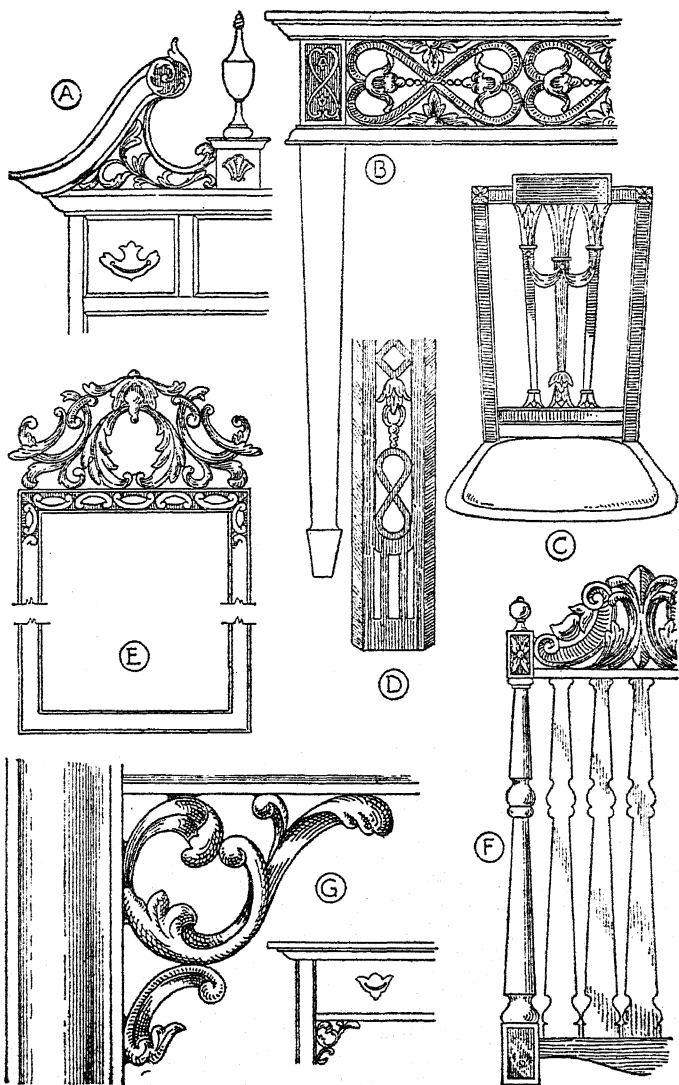


FIG. 2

suitable for some kinds of this work. Firm, close-grained white oak, rock maple, and black walnut are appropriate woods. Apple and pear wood are ideal for the purpose; in fact, pear wood possesses superior properties. It may be carved in any direction, and the thinnest sections of it will have a cohesion not found in most woods. It has a fine and uniform grain, polishes well, and is greatly prized by wood carvers for pierced work.

As an exercise to begin with the carver might try cutting simple rosettes, examples of which are easy to find. Small pieces of work such as these will show the proper methods of procedure for a project he may wish to make later on. They may even be made to serve some useful purpose. A rosette carved on the top of a pair of book ends or a small mirror-frame top would be quite appropriate. The open spaces can be drilled out, or removed with a coping or jig saw, and then carved.

In Fig. 3 are shown three suggestions for small projects which may be decorated with this kind of carving. The tray (A) is easy to carve because the motif consists of only a few scrolls and some simple leaves. In this project, the entire background is not cut out but only enough of it to give the effect of pierced work. If so desired, the tray can be carved on the inside rather than the outside, or there can be carving on both sides.

The Japanese and Chinese have a custom of putting a carved base of teak or ebony wood under their vases. The custom is worthy of imitation. Their designs are

distinctive. They may be copied or one may design similar bases for American-made vases. At B in Fig. 3 is a design for such a project. This is a turned base, all of the hollowing being done on the lathe. The piece can also be carved while it is still fastened to the lathe. A vase made into a lamp would be effectively set off if it were fastened to a carved base of this kind. Like

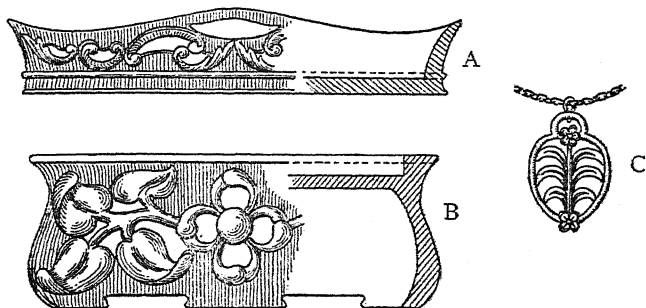


FIG. 3

the tray, this project has only part of the background pierced. The same idea may be applied to the design of wooden napkin rings. The motif, as shown, is quite simple. It should have two rosettes and four clusters of leaves. More complicated designs can be worked up with ideas garnered from the carving in Fig. 4, for example.

For the carver who likes to work in miniature, there is a good suggestion for a watch charm or pendant at C in Fig. 3. A piece of work as small as this should be made of wood no thicker than $\frac{1}{8}$ in. When completed, it can be stained or dyed in several different colors. There are also various colored composition

materials on the market, most of which carve rather well, and these may be used for this purpose. The open places on a project of this kind should be pierced with a fine drill and cut out with a No. 1 jeweler's-saw blade.

It is, of course, possible to carve projects like those shown at A, B, and C in Fig. 3 before cutting out the background. Both methods are used and each may be tried to see which proves the most satisfactory. On a carving like the one shown in Fig. 4, it is best to remove the background first.

There are many suggestions in Fig. 2 for projects of a type on which pierced carving may be used to good advantage. At A is shown the top of a handsome highboy. The finest examples of these pieces of furniture are occasionally carved with a pierced grille in the pediment, in the manner suggested by the sketch. Highboys carved in this way make very impressive pieces of furniture. Reaching nearly to the ceiling, as they do, and built of the finest mahogany, highboys are worthy of being ornamented with the very finest kind of carving one can give to them. Many of them have a carved-shell drawer front and some of the richest have two; one being on the lower section as shown in the lowboy design in Chapter VI, the other in the middle, small drawer at the top, just below the pediment. The base of the highboy was often a reproduction of a lowboy (or perhaps it was the other way around) except that it was generally higher, longer, and more sturdy to support the large number of drawers above it.

The top on a tall piece of furniture like this should be very carefully ornamented because the eye has a tendency to move upward on pieces of this kind and come to rest at the pinnacle. Its decoration should be a matter of more than passing moment for it is the most important decorative element on the piece. The beauty of the highboy will to a great extent depend upon this ~~one~~ member.

The particular design shown has the characteristic overhanging cyma-curved molding ending in a carved rosette, found on the richest examples of this style. The pierced work consists of delicately modeled and well-formed, scrolled acanthus leaves. This grille is usually carved from a board not more than $\frac{1}{2}$ in. thick. To keep the thin scrolls from breaking, such boards are often veneered on the back with a thin layer of wood running across the grain of the piece to be carved. This strengthens the finished carving considerably. A similar treatment may be given to other elements which are to be carved in this manner, especially if they are made of thin stock or if they are used as is the one shown at G.

Brackets such as G were often placed on small occasional tables, especially by Chippendale. They constituted a graceful and decorative element on pieces of this kind. A scroll of this type could be added to the table shown at B, where the leg and rail meet. Not all of the brackets were as elegant as this one. Some were quite simple, consisting merely of a carved C-scroll.

The pierced table apron (B) would be ideal for a

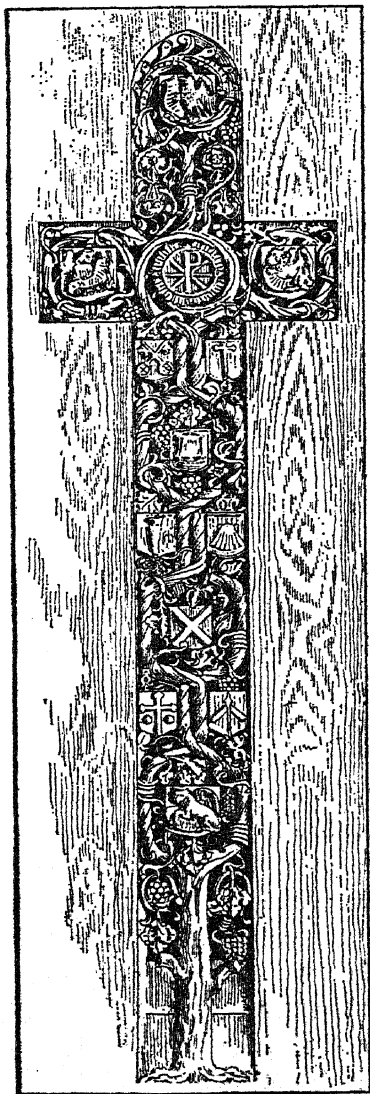
small card table. It is a beautiful design and one which would help to make an exceedingly handsome piece of furniture. It can be carved in walnut or mahogany.

At E is shown a rich-looking mirror frame. Frames of this type will add a note of elegance to any room. On pieces similar to this, the pierced work is often coated with gold leaf, which is durable and adds a great deal of distinction. On the piece illustrated, the frame itself is also pierced but enough solid wood must be left at the inner side for fastening the mirror.

One of the most beautiful pieces of work shown in this entire book, is the carved crucifix shown in Fig. 4. It is given as an illustration of modeling of the most exquisite kind. One who loves excellent workmanship and appreciates good carving could spend hours of enjoyment in examining and admiring its details. Without the proper imagination, it is difficult to conceive the possibility of so much beauty in a single piece of wood, an inch thick, perhaps a foot wide, and about four feet long. Under the hands of an artist, this dead material has come to life to leave the impress of its beauty on the hearts of men for generations. A similar piece of wood cut from the same log may have been destined to become merely a stair tread—useful to be sure, but with its potential beauty hidden, never to serve as an inspiration to all who might see it.

There is so much fine detail on this panel that it is impossible to see all of it in a moment. It arouses a feeling of admiration at the first glance, but this feeling grows and expands as one examines it more closely. Pick out any detail, such as a curled tendril of the

FIG. 4



CARVED
CRUCIFIX

grape vine, a ribbed leaf, a cluster of grapes, or the symbols on the shields; all are marvelously formed. There is no attempt to portray nature exactly as God gave it to us, but rather there is a fine adaptation of motif to material which makes the results far more appropriate than if nature had been exactly reproduced.

Few people realize the inherent possibilities for beauty which lie in a piece of wood. To bring them out should be the aspiration of an ever-growing number of people. There can never be too much beauty of this kind and greater demands for work of this sort would create a field of artistic employment. To be able to achieve work such as this is one of life's greatest privileges.

We mentioned the fact that we considered Gothic ornament and carved tracery to be very beautiful, and if rightly used, appropriate for domestic furniture as well as for church work. The fact of the matter is that in Spain it was often employed on fine pieces during the 17th century and earlier. In Fig. 5 we show a sketch of a Spanish cabinet which combines Gothic and Moorish motifs in its design, and which has small grilled canopies over the pigeonholes near the top at each side of the cabinet. Spanish pieces of this type were known as *varguenos*, and were richly ornamented with carving, inlay, and decorative metal work. The front of the cabinet was generally inclosed with a lid which could be dropped down to form a writing surface, for the piece was used as a desk. The top of the Moorish arch might also have a grille, similarly carved.

Sometimes the openings in these grilles were backed with crimson or other brightly colored velvet, adding to the richness of the ornamentation.

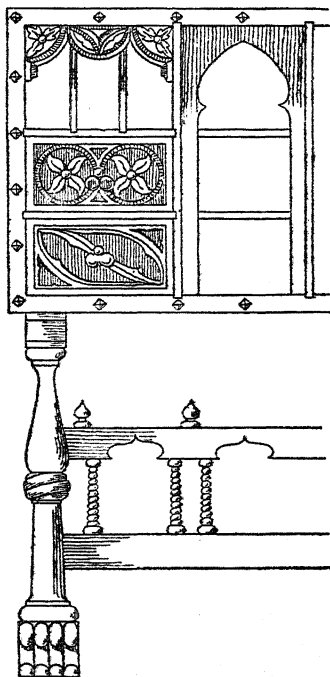


FIG. 5

A delicately carved Sheraton chair back is shown at C in Fig. 2. All of the four great English cabinet designers of the 18th century employed the pierced carved backs on their chairs. This one illustrates a light side chair of characteristic Sheraton style. Sheraton favored straight structural lines and his finely pro-

portioned members, decorated with excellent carving, were generally fashioned in this manner. He could thus make them light without sacrificing too much strength. Pieces as light-looking as this often had much more strength than was apparent.

Another chair back of a sturdier age and mode is the banister back shown at F in Fig. 2. These chairs also had pierced and carved headpieces. Though belonging to the Jacobean style, they are still greatly prized by collectors. The headpiece, which was about an inch thick, was generally carved of some domestic wood such as beech, oak, or pear wood. In America they were most often carved of maple or walnut. The seats of the chairs were in many cases rush-bottomed, and some of them had long curved arms and bulbous-turned stretchers, making imposing and dignified pieces of furniture when assembled. Most of this dignity was due directly to the impressive headpiece.

The carving on these headpieces varied but little. There was a long C-scroll on each end, with a cluster of curved leaves at the center, and a few other minor elements. In some instances there were S-scrolls in place of the C-scrolls, or a combination of both. The flamboyant manner in which the carving was executed contributed much to the chairs' imposing appearance. They were nonetheless quite comfortable to sit in. The back of the carved piece was left flat, except for a slight beveling around the edges.

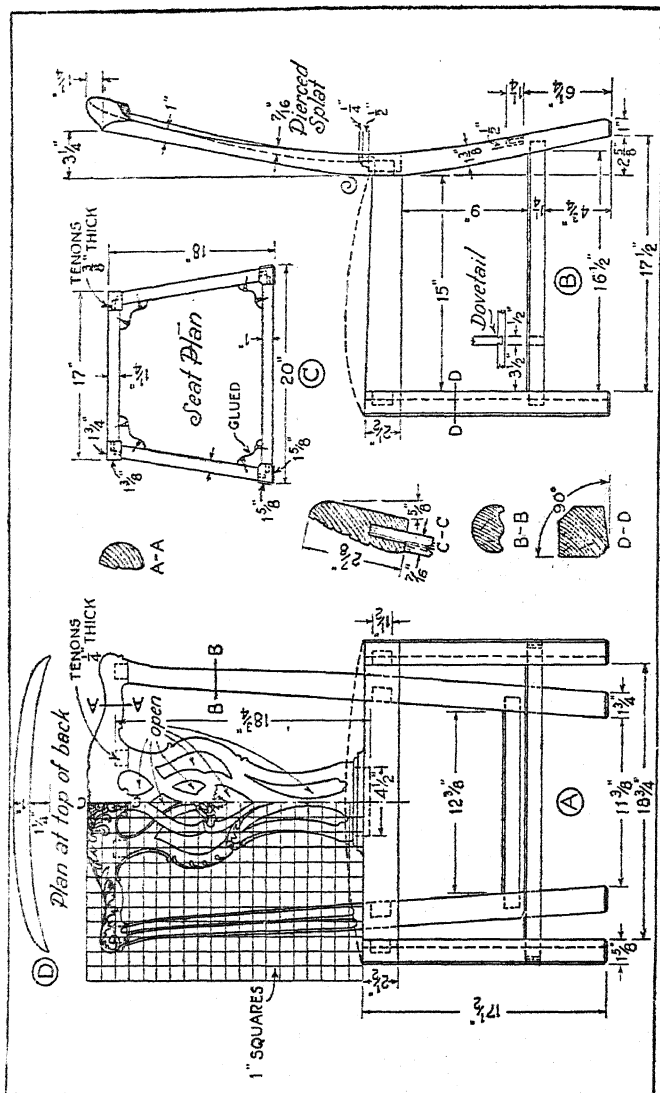
In several chapters of this book complete working drawings for one or two pieces of furniture and accessories have been given, together with some explana-

tion of how the projects may be constructed and carved. We believe this to be the best way in which to make the subject matter practical and, at the same time, to make the craft of wood carving so desirable that anyone who looks through the book will want to learn how to do it. As we have proceeded, many of the projects suggested have become more difficult, but the interests of the less skillful worker have never been forgotten. In a book of this kind, attempting as it does to show and explain various phases of craftsmanship, it is necessary that many grades of work be shown which require as many degrees of skill as possible.

Since pierced carving was greatly favored by the cabinetmakers of the 18th century—the greatest period that furniture has ever known—we consider it quite fitting to include in the present chapter a design of a handsome pierced splat-back Chippendale chair. This chair design is shown in Fig. 6.

Before launching upon an explanation of the construction and the carving, let us consider a few facts about chair design. Taking chair making as a whole, it is a craft requiring the greatest skill of any branch of cabinetmaking. Chairs present difficulties of construction seldom encountered in other pieces of furniture, and as a general rule a good chair maker is one of the most highly skilled workmen in the shop.

To make a chair light in weight and at the same time strong and sturdy enough to withstand the abuse to which it is commonly subjected, is a problem in itself. To make it a comfortable seat in which to dine, rest, or lounge, to give it grace and endow it with



beauty so that it will be prized and admired by those who use it, is an art—and one for which the designer must be directly responsible.

The art of the designer and that of the wood carver are almost inseparable. Many wood carvers have become great designers. Chippendale himself was a wood carver by trade, and as usual in such cases, if one has talent, it led him into the field of designing and building furniture.

In the Chippendale design under consideration, note the delicacy of the carving. The elements are small and beautifully formed. Observe the places where the important centers of interest are located—at the top of the chair and in the widest part of the splat. The carving does not interfere with comfort in the least. At no place is the modeling more than $\frac{1}{8}$ in. deep and a great deal of it is no more than $\frac{1}{16}$ in. deep. Thus decoration does not interfere with intended service. A refinement of design is the carving on the back legs above the seat. The front legs could be carved in the same manner if so desired, or if one wishes to go to the trouble, legs like the one shown at D in Fig. 2 may be substituted for solid legs, although this type of leg is generally used on small tables rather than on chairs.

To build the chair proceed as follows: Make the back legs first. The two legs may be cut from a single plank of mahogany 2 in. thick by $5\frac{1}{2}$ in. wide by 36 in. long. The legs are exactly $35\frac{1}{2}$ in. high from the top of the tenon to the floor. By laying the pattern for the side of the leg on the side of the plank, and marking out two legs, they may both be cut from the

same plank on the band saw. The front of the legs will come from the edge of the plank, which must be fully 2 in. thick in order to get the proper flare at the top of the leg.

After cutting them out on the band saw, the legs must be carefully smoothed with planes and a spoke-shave to the proper shape. An adjustable curved-bottom plane will facilitate the smoothing and shaping of legs such as these.

Next, saw out the top stretcher and shape it approximately as shown at D. Use stock $2\frac{1}{4}$ in. thick for this piece. Do not finish shaping the ends of the stretcher, however, until all joints have been assembled. Also, do not cut the bottom of this stretcher to shape until after all the joints have been fitted—leave it straight until then. The most difficult part of the work in building the chair is the joining of the members which comprise the back. The joints on these must be absolutely perfect, and very little shaping can be done on them until after all of the joints have been fitted and the back has been assembled.

The splat is made from a plank $1\frac{1}{4}$ in. thick. Only the edges of this piece can be sawed on the band saw. The front and back must be cut to the proper curvature with the curved-bottom plane. If a pattern is made for the edge of the splat, giving the proper curvature, and is marked off on both edges of the plank, the wood may be roughed down to its approximate thickness and shape with a large, flat carver's gouge by cutting across the grain. The work should then be smoothed with the curved-bottom plane. It is best to

proceed to this stage before sawing the edges to shape. When sawing the edges to shape, as shown in the front elevation A, leave some extra wood at the top until after the chair back has been assembled, when the final shaping at the joint may be done either on the jig saw or with carving tools. This same precaution should be taken wherever there is to be a joint which later has to be shaped.

Much of the piercing on the splat may be done before assembling the back but not before the joints have all been fitted.

When the rear seat stretcher and the bottom stretcher have been cut out and shaped, all the joints should be made and fitted. To do this proceed in the following manner: Lay out a full-size pattern of the back legs and stretchers on a floor or on a piece of heavy paper. This need not show the curves, which will be cut later, as it is to be used only for the purpose of laying out the joints. Be sure that the legs on this pattern are $11\frac{3}{8}$ in. apart at the bottom, and $16\frac{3}{4}$ in. apart at the top. If all of the stretchers are laid out on this plan, without the curves, it will be possible to find where they join the legs, and also to get the proper angle at which the joints must be cut. Set a bevel square to the proper angle for each joint in order to lay them out on the legs and stretchers. After the joints have been laid out on the wood, cut the mortises first. The angle at which they are to be bored and mortised should have been indicated with pencil lines on the adjacent side of the leg before boring. Next cut and fit the tenons.

Now make a trial assembly of the entire back. In doing this, join the bottom stretcher and the seat stretcher to the legs first. Then join the bottom of the splat to the seat stretcher, and finally the top stretcher to the four tenons which hold it in place. If the layout work and the mortising and tenoning have been carefully done, the joints will fit almost exactly. They should require very little, if any, trimming to make them tight. If any trimming is necessary it should be done at this time, and work on the joints must not be considered complete until each one fits perfectly.

When this point has been reached, the splat may be pierced, the lower edge of the upper stretcher may be cut to its approximate shape, and the back may be glued.

After gluing the back, the shaping of the curves, the forming at the back of the upper stretcher, and the truing of the pierced holes may be done. The draw-knife, spokeshave, chisels, files, and sandpaper may be used for this purpose. When all profiles have been properly corrected and all surfaces have been thoroughly smoothed, a stencil pattern of the carving may be cut, and the pattern transferred to the wood.

The chair back should now be carved. In carving and shaping the back, the cross sections given on the drawings will be of some help. However, for the modeling of the design, the matter must be left largely to the carver's own judgment. The long C-scrolls at the top of the splat are hollowed at the outside and rounded over at the inside. Fluting tools are used to cut the grooves in the back legs and a skew chisel to

round the convex ridge in the center. These are about all the instructions that can be given. Endeavor to obtain graceful curves on the leaves. Be careful not to carve too deeply at the joints, lest you weaken them. The background surrounding the carving may be left smooth, or be given a slightly roughened surface texture with finishing tools.

After the back has been carved, proceed with the stock for the remainder of the chair. Lay out the mortises for the front legs and the remaining four on the back legs. Cut all of these, and then lay out and cut the tenons on the stretchers. The front and side seat stretchers need not be made of mahogany; a cheaper wood may be used since these will be covered by the upholstering, which comes to the bottom edges of the seat stretchers except at the back of the chair. The joints at the front legs are square, but there is a compound angle where the side stretchers join the back legs. This angle slants on all sides of the stretcher and must be laid out with care. It is not a difficult joint to make provided sufficient thought has been given to it beforehand. An experienced chair maker will of course have little difficulty with it. The medial stretcher is joined to these side stretchers with dovetail joints.

When assembling the chair, glue the front first. Then join the front to the back by gluing the side stretchers. Finally, glue the medial stretcher. After assembling the chair, brace the seat with corner blocks as shown in the plan at C.

This chair is not an easy one to build but any good amateur cabinetmaker can construct it by taking

proper care as he proceeds with the work. After he has built it, he will own a thing of beauty; and unless he has built other chairs before, he will have learned a great deal which will be of value to him.

The chair should be given a good hand-rubbed finish, and be upholstered with a satin brocade. Since both of these processes are outside the scope of this book, we will let the builder secure any such information he might need from other sources.

CHAPTER IX

CARVING TURNED OBJECTS

WITH this chapter we begin a study of still another form of wood carving, and one which differs greatly from any that we have treated before. It is known as carving in the round. The particular phase of it which we are about to discuss deals principally with objects that are carved after they have been turned on a lathe. The difference in this carving from some of the types previously discussed is not so much in the carving itself as it is a difference in the parent mass on which the cutting is done. All of the carving which has been treated in the preceding chapters was done on one side of the object only. In the present chapter, and others following this one, we will deal with carving which is three dimensional instead of two. Of all the carving falling into this three-dimensional class, that which is done on turnings is in most cases the simplest to do.

The art of wood turning is in itself an absorbing craft and the man who has a lathe in his workshop has the means to make many beautiful and useful objects which may be used as accessories in the home. He also has the opportunity to increase greatly the variety of the decorative elements on any furniture he may wish to build. In most of the historic furniture styles, ex-

tensive use was made of turning for such members as table and chair legs, bedposts, and various other members. In some cases, the type of turning denoted the style, as in the William and Mary period when the trumpet-turned leg was a unique and distinctive feature. In at least one case, the turned members help us to distinguish between two great furniture styles which are often so nearly alike in other respects as to defy positive classification. We refer to the Sheraton and Hepplewhite styles. These two styles are very similar, except that Sheraton favored turned legs while Hepplewhite commonly used square tapered legs.

While turning does add a great deal of grace and refinement of proportion to many articles on which it appears, its embellishment with good carving adds still further to the distinction and value of such pieces. Turned members on furniture appear rather plain ordinarily because the variety of forms which turning can take is definitely limited. But with the addition of carved ornament, the possibilities for enrichment of design are greatly increased.

The field of wood turning is not restricted to furniture parts but extends also to a large number of smaller objects and utensils, which are turned in their entirety and compose an important and useful group of accessories for the home. Designs for two objects of this kind, a fruit bowl and a powder stand, are shown later in Fig. 5. Objects such as these constitute a fine field for exploitation by the amateur craftsman who may wish to turn his spare hours into cash. They have sufficient interest to attract a ready market, and

the little time consumed in making them as well as the frugal consumption of material usually makes the manufacture and sale of such objects a profitable undertaking.

A dinner or a luncheon set made of some beautifully figured wood holds wonderful possibilities for the wood carver. Sets of this type would necessarily have to be finished in a suitable manner to make them serviceable. This could very easily be done by using any of several well-known modern finishes available on the market today.

A set of dinner plates, for example, could be carved around their rims with a suitable design in low relief, or even with pierced carving. It is not difficult to visualize a set of turned goblets carved in a manner similar to the design shown for the powder stand, or the stems might be enriched with spiral carving. There could be long platters carved at each end, bowls with carved rims, and carved salad plates. One could carve a complete tea or coffee set. On a teapot, for instance, the spout and the handle could be carved. The beauty and distinction of a service such as this, if it were well designed, is something worth contemplating. The fruit bowl, carved to simulate a sea shell, is but a single idea among thousands which might be tried.

While the above ideas are practical and feasible as one channel into which the craftsman's efforts may be directed, the wood carver's greatest field of exploitation in the past has been the ornamentation and enrichment of furniture. This is quite evident when one visits almost any museum in which the handiwork of

the past is preserved. There are many reasons why this should have been so. The woods and other materials most suitable for carving because of their natural beauty have always been more or less expensive due to their comparative scarcity, or to the inaccessibility of the sources of supply. Such woods naturally have been reserved for and associated with our personal comforts and home needs. Furthermore, the craft is one which requires a degree of skill and patience that is worthy of a commensurate money reward—and the furniture field offered an extensive market for such workmanship. Too, the material used has sufficient durability to make it worth while expending the effort necessary to decorate it in this manner. These are only a few of the more evident reasons why furniture has been the natural choice as the greatest single medium of expression for this craft rather than other possessions cherished by man, such as houses, vehicles, or yachts, just to mention a few. The latter are occasionally enriched with carving, but not as a general rule.

Carved ornament for furniture falls into all of the classifications that have been treated thus far as well as those still to be discussed from this point on. Certain forms of carving are particularly suitable for turnings. Among them are reeding, fluting, spiraling, and the acanthus leaf in one form or another. These four, with variations, constitute the principal types of carved ornament which can most easily be adapted to turnings.

Reeding is often done by machinery. It is nevertheless a form of carved ornament. Originally, it was done

by means of carving tools—a V-tool being used to separate the reeds and a skew chisel to round them over. They are still carved in many instances, especially when the reeding appears on a sharply curved ball-turning, or when it is stopped by another decorative element such as a series of leaves as shown in H, Fig. 1. This form of decoration was a particular favorite of Duncan Phyfe for many of his most splendid creations. It has a delicacy and refinement found only on pieces of superior quality. The stop-reeds shown at G in Fig. 1 are also carved by hand. In this case the fluting, which forms the principal theme, is “stopped” near the base with a very narrow bead molding known as a reed, which appears to be laid into the fluting groove. While machine cutters may be made to do this work, it is in most cases carved by hand.

Reeding originally received its name, so it is said, from the fact that it resembled a bundle of reeds tied together with a cord. It is a form of ornament which has survived from the Roman era, or perhaps earlier times. Sometimes it is carved in the manner shown at C, Fig. 1 to give the impression that the reeds are really tied to make a bundle.

To lay out reeding on a turning for carving, wrap a narrow band of paper around the turning so that the ends of the band will meet exactly. Remove the paper and divide it into as many equal spaces as there are to be reeds. Rewrap it around the turning and mark the divisions on the wood. The divisions may be similarly marked at as many other places on the turning as desired. This becomes necessary in many cases in order

to get the lines straight, especially if the shaft which is to be carved bulges or curves inward like the bed-

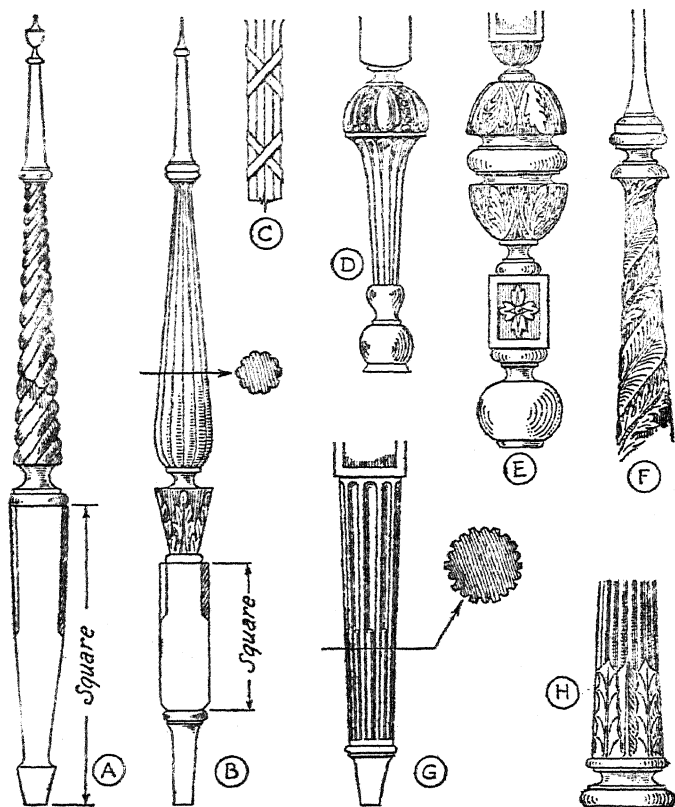


FIG. 1

post shown at B, Fig. 1. The divisions on a shaft of this kind should be marked at three places, at least; one at the bottom of the reeding, another at the point of

greatest diameter, and the third at the top of the reeding. After marking the divisions, the reeding may be carved by cutting out the vertical lines, separating them from one another with a V-tool, and then rounding the reeds with a skew. Some carvers use a V-tool, the edges of which curve outward. A picture of a tool of this kind is shown in Chapter I.

Fluting is just the opposite of reeding. In reeding the elements are convex, while in fluting they are concave—grooves cut into the wood and separated by a number of fillets known in architecture as listels. Flutes should be approximately half as deep as they are wide, and the incurve at the top and bottom of the flute should form an exact quarter of a circle. Edges formed where flutes and listels meet should be sharp and straight. This gives a “kick” to the carving and a definiteness not found in shallow-grooved fluting. There are occasions however where shallow forms of modified fluting are desirable and proper. This is true in a leg such as D in Fig. 1, or where a spiraled fluting is carved on a post as shown in Fig. 4. In most of these cases, however, there is no listel or fillet between the grooves. The carving on the inverted cup-shaped turning at the top of the leg (D) in Fig. 1 is an interesting elaboration of reeding. It is in reality a series of reeds of various widths, some of which are carved to form round beads.

To lay out flutes for carving, proceed in a manner similar to that for laying out reeding. Here, however, the vertical lines laid out on the shaft to be carved should be the center line of each listel instead of its

boundary. The boundary lines of the fluting may then be drawn before the carving is begun. If the flutes are to be cut by machinery, the spacing of course is determined by the width of the cutter. Beautiful fluting may be done by hand with carving tools, as attested by good examples preserved for us in museums.

The treasures housed in our great museums have a value which every true craftsman soon learns to recognize, and this value is not the price paid for them by benefactors who placed them there, as the superficial observer or casual visitor to the museum often supposes. Museums are storehouses of ideas but, like Ali Baba entering the cave of the Forty Thieves, one must have the "Open sesame" to benefit by the great riches contained therein.

Both reeding and fluting are often carved on a column or shaft in spiral form. This kind of ornament had its origin in the East, in oriental countries. The Moors were probably responsible for its introduction into Europe in the 15th century. At least we know it is a favorite decorative motif on furniture found on the Spanish peninsula. Whatever its origin, it is an effective method of decorating a turned column, and one which it is seldom possible to adapt to any other form of work.

Spiraling may take a great many different forms, as shown by the sketches in this chapter. It may be reeded, fluted, or otherwise varied as shown in F, Fig. 1, and A, Fig. 2. Many amateurs hesitate to attempt it because they do not know how to lay it out. In Fig.

3, the layout and step-by-step method of procedure is shown.

To lay out a single spiral, first sand the turned shaft smooth so that lines may be easily drawn on it. Next draw center lines on each end, making them perpen-

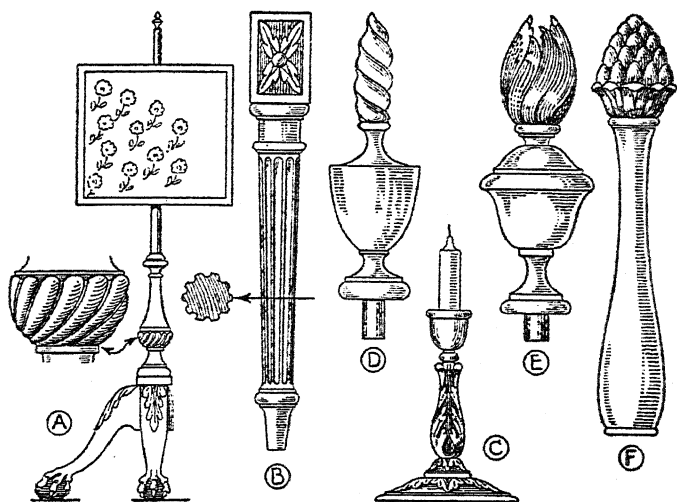


FIG. 2

dicular to each other if the carving is to be done on a plain shaft. If, as often is the case, there are other turned elements above and below the part to be spiraled, then mark off four points equal distances apart at the top and the bottom, and through these draw four vertical lines as shown at B in Fig. 3. Be careful to keep these lines from leaning one way or the other when drawing them. Proper care when drawing the first line will help. If the turning is kept in the lathe

to lay out the spiraling, it is very easy to get the lines straight because a pencil may be steadied on the tool rest, and the tool rest may be drawn along from one

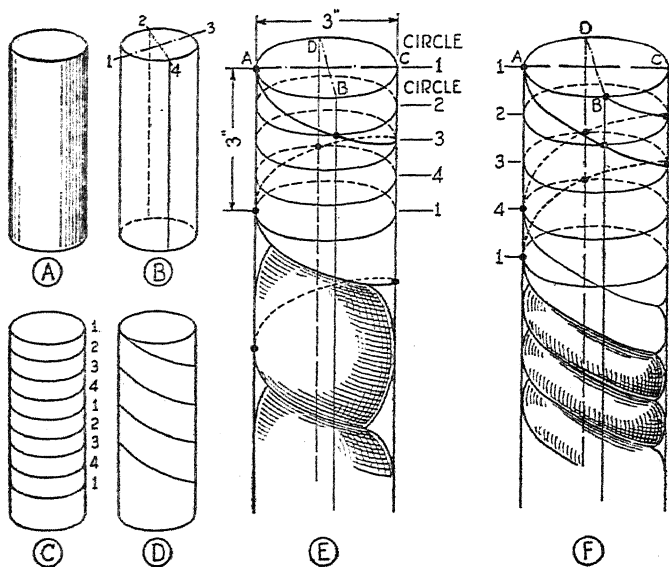


FIG. 3

end of the lathe bed to the other, thus making a straight line.

In the third step, lines are drawn around the shaft, equal distances apart, as shown in C, Fig. 3. This divides the shaft into segments. It is usual first to divide the shaft into segments which are as long as the diameter of the shaft, and then subdivide these into as many parts as there are vertical lines, in this case four. For example, the distance from circle 1 in the first seg-

ment in E to circle 1 in the second segment is equal to the diameter of the shaft, or 3 in. Each 3-in. segment is subdivided by means of circles spaced $\frac{3}{4}$ in. apart, making four spaces in a distance of 3 in. in this particular case.

The fourth step consists of actually drawing the spiral around the shaft, as shown at D, Fig. 3. The step-by-step procedure has been shown at A, B, C, and D to make it easy to understand. At E the complete procedure is indicated on a single diagram, and the resulting spiral is shown about as it will look after it has been carved.

To carve the spiral, grooves are first cut along the lines that have been laid out. These may be cut with a V-tool or, as is often the case with single spirals, with a fluting tool. Some even use a backsaw to make the first depth cut, following this with chisels. The convex part is then rounded over with the skew chisel and the entire carving is rounded and trued with files and sandpaper.

An index head on the lathe is a great advantage for holding the work when carving, as well as for determining the spacing when laying out work of this kind. On the lathe shown in Fig. 4 the index head has 48 holes, allowing the work to be locked in any position desired. Since 48 is divisible by 2, 3, 4, 6, 8, 12, etc., it is a good number of holes with which to equip an index head if a homemade one is built (see Chapter I). The spacings that are possible may vary greatly for different classes of work.

At F in Fig. 3 is shown the method for laying out

multiple spirals—in this case a quadruple spiral. When doing this, the same procedure is followed as with the single spiral in so far as steps A, B, and C are concerned. But when step D is reached, spirals are started from points A, B, C, and D instead of from A only. In other words, there will be as many spirals around

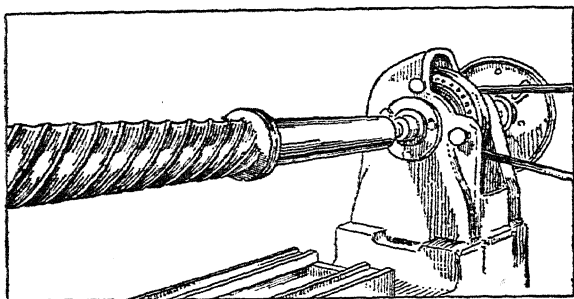


FIG. 4

the shaft as there are vertical lines. The number of segments into which a given distance is divided determines the pitch of the spirals. On the bedpost shown in Fig. 4 there are eight spirals. It will be noticed in this case that as the diameter of the shaft increased, the pitch of the spiral lessened because here the segments were not increased in proportion to the diameter, but remained the same distance apart from top to bottom.

The spiraling in Fig. 4 consists of wide concave grooves alternating with V-grooves. The lines which had been drawn to lay out the spiral in this case were cut out with the V-tool when starting the carving.

An interesting variation of spiral carving is shown

at F in Fig. 1. This particular type, known as the leaf-and-feather motif, was a favorite during the Empire period, especially for elaborate bedposts.

The spiraling shown on the cup of the powder stand, Fig. 5 and at A in Fig. 2, is slightly different from the other types shown, in that it does not go completely around the turning. The method of laying it out is quite simple, however. The upper end of the part to be carved is stepped off into the required number of divisions and vertical lines are drawn as nearly parallel to each other as the shape of the turning will permit. Then it is customary for the spiral line to be drawn from a point at the top to a point on the adjacent line, either all the way down or only part of the distance. Short spirals of this kind are not as a general rule pitched more than two spaces over, though a greater pitch may be given.

At D in Fig. 2 is shown a carved candle flame which is an instance of a good use for the spiral. A finial such as this may be used on a swan-necked pediment of a Chippendale cabinet or secretary, on a tall clock case, or for numerous other purposes. The torch flame shown at E, Fig. 2 is more elaborate and presents greater difficulties. The large elements of which it is composed are carved first of all to their approximate form. The fine lines on each of these may then be added to complete the job.

The fruit bowl illustrated in Fig. 5 is patterned after a sea-shell design. To make it, first fasten the side which is to be the top of the bowl to a large faceplate. Lay out and turn the base molding and also shape most

of the outside of the bowl. Remove the faceplate and fasten it to the opposite side of the block. Be careful to center the faceplate as accurately as possible. If this is done, very little truing will be necessary after

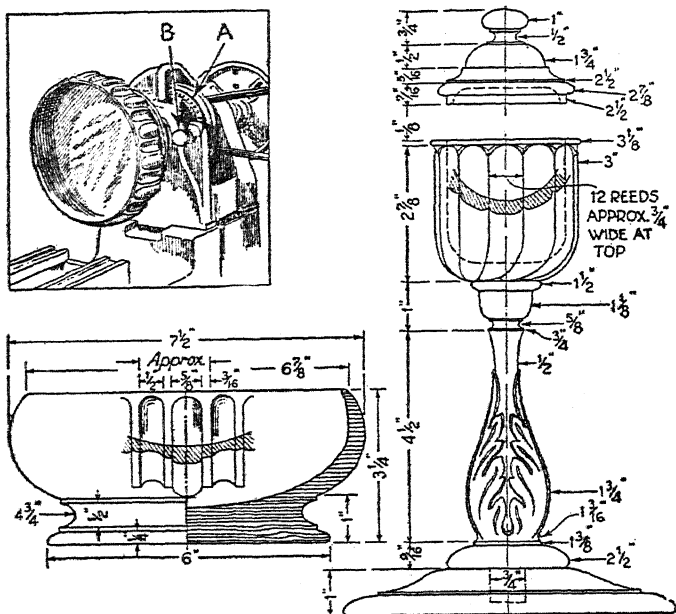


FIG. 5

the faceplate has been changed. Do what truing is needed, especially on the outside at the top, before beginning to hollow out the inside of the bowl. Hollow the inside, leaving the walls pretty thick (about $\frac{1}{2}$ in. except at the top) so that the carving will not be cut through. Sandpaper the bowl.

Lay out the spaces for the alternating grooves, fillets, and reeds as shown in the drawing. Begin to carve by cutting down the grooves or flutes first. Then lower the fillets and finally round over the reeds with a skew chisel. The square-U tools are very useful in cutting down the fillets and truing the edges of the reeds. Cut all elements so as to leave definite clear-cut edges. When sanding the carving, use very small sheets of sandpaper (about $\frac{1}{16}$ part of a whole sheet) and smooth the work thoroughly but with due precautions so as not to round the sharp edges left by the tools.

A fruit bowl such as this is very ornamental as well as useful. It may also serve as a bowl for nuts, candies, or cookies.

The other form of carving suitable for the decoration of turned objects is the modeled leaf in its many varied forms. Numerous kinds of leaves are suitable for this purpose, and they all make attractive decoration.

In A, Fig. 6 is shown the acanthus leaf used with fine effect on the legs of a small table of Italian design. In B of Fig. 6 is illustrated a smooth-edged water-leaf motif used on a card-table shaft. This was a design greatly favored by Duncan Phyfe. He used it sparingly and with good taste. In H, Fig. 1 is shown a shaft on which holly leaves have been carved. This is another motif that was favored by Duncan Phyfe. The same motif was occasionally used on the gracefully curved legs of his tables as shown in B, Fig. 6. The design is excellent and deserves wider application.

The acanthus leaf is shown put to good use on the

carved candlestick pictured in C, Fig. 2. A gift of a pair of candlesticks such as this would delight almost anyone. They also have ready sale value.

An interesting use of the acanthus leaf is shown in the melon-bulb turning E in Fig. 1. Massive members such as these were used on the long refectory tables

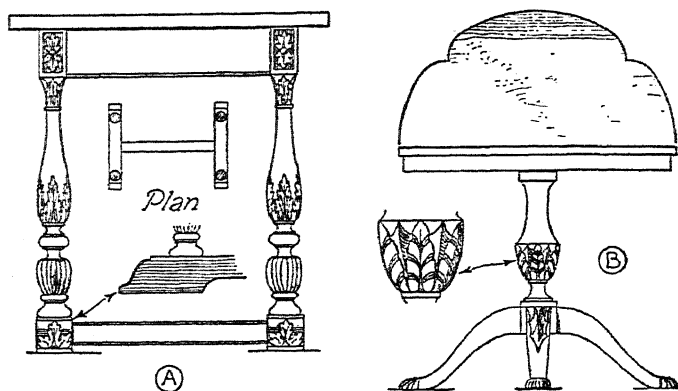


FIG. 6

of wealthy merchants and nobles in England during the Jacobean and Elizabethan periods. Tables of this kind were very heavy and substantial, and were built of solid oak.

At F in Fig. 2 is shown a pineapple top for a bed-post. This motif was a great favorite during the Empire period, and has considerable merit.

The powder stand shown in Fig. 5 (at right) is a good practical illustration of two of the types of carving which have been discussed in this chapter. The beautifully modeled acanthus leaves clasp the well-

formed stem of the piece in a manner which seems quite natural and appropriate. It would add a pleasing note if the leaves were curled over at the top just a trifle. This feature could be incorporated in the carving by leaving a little extra thickness of stock, when doing the turning, at about the place where the tips of the leaves are to curl. The heavy central ribs of the leaves could also be carved as a series of connected beads, which would add a touch of richness to the design. The acanthus-leaf design could be carried out on the base in much the same manner as suggested in the sketch of the candlestick, C in Fig. 2. The slightly enlarged element just under the cup might be carved in the form of a partly opened rose bud. The cup itself could be carved with a series of acanthus leaves in place of the reeds, or the stem might be carved with a spiral. The above suggestions are merely for the purpose of giving ideas, for the sake of variety, to anyone who wishes to do some original planning on a similar project.

In planning the turning for an object of this kind, the elements should all be very carefully proportioned and beautifully formed. One must be particularly careful to avoid monotony when designing turnings. This may be done by avoiding too many elements which are alike, and especially by being careful not to bring a number of very similar elements into close proximity with each other. There must be a continuity of movement, that is, the eye must be able to make any jumps without an effort—but it is just as desirable to have a pleasing contrast of movement together with this

continuity. It is therefore undesirable to have a turning in which there are too many perfectly smooth changes in direction or, in other words, one on which the curve undulates from convex to concave without a small fillet to break the monotony. These fillets should never be wide, and in a small, beautifully proportioned turning such as the powder stand, they should be very narrow, probably not more than $\frac{1}{16}$ in. Edges where a change of direction occurs should be sharp and definite, and in sanding great care should be taken to leave them sharp.

Another important refinement to seek is beauty of the individual curves themselves. There is a great deal of difference between the beauty of a curve which forms a quarter circle and that of the more refined shape of the supporting curve just under the cup of the powder stand. This curve is gracefully formed along its entire length, and because of its variety caused by the change from a quick to a more gradual sweep, it loses the monotony of the constant sameness which a segment of a circle would give. The beauty of the curve just above the base is due to the fact that the change is more rhythmic and more intriguing than the curve of a half circle, which has no variety. Some of these may seem like minor and trivial details, but they make the difference between work bespeaking refinement and that which has the mechanical appearance of having been turned out by the thousand.

CHAPTER X

CHAIRS AND STOOLS

WE ARE now ready to consider another form of carving in the round. It is more difficult than the kind of carving discussed in the preceding chapter because the major mass, upon which the carved design is to appear, must itself be carved before the design can be worked on it. While the preliminary carving is principally a shaping operation, it often falls to the lot of the wood carver to do it, and it is therefore an important branch of the craft. As such, it is proper to give some attention to it at this time.

In Fig. 1 are shown a number of typical furniture legs and feet which have been carved. The examples shown have been chosen for their beauty of form, and also because they are typical of the styles and periods which they represent. Legs and feet such as these are to be found on good examples of chairs, tables, and other types of cabinet furniture in their respective styles.

Of all the great variety of types of legs ever developed for furniture, the cabriole leg is in our opinion the most beautiful. It is also one of the most graceful elements to be found in the entire field of furniture design. The cabriole leg has passed through quite a

number of stages in the development of its finest and most graceful form. One of the earliest ways of shaping it is shown at D in Fig. 1. This is the Flemish type of cabriole leg, developed in France and Belgium by

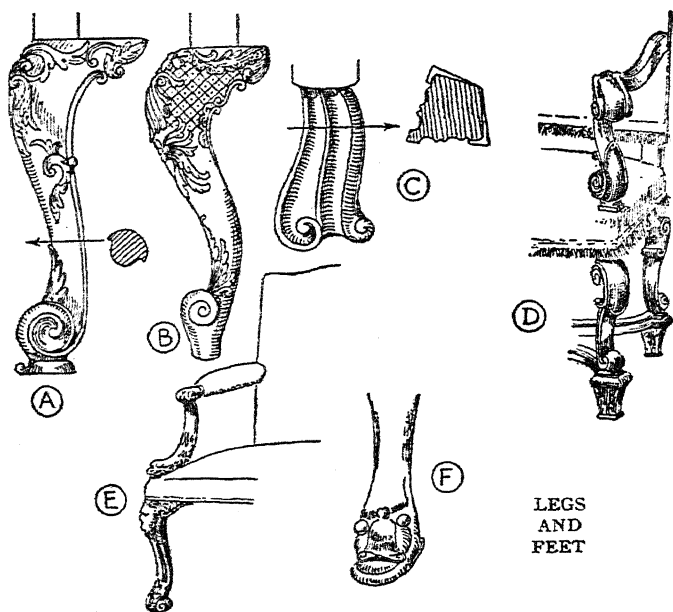


FIG. 1

craftsmen during the early part of the 17th century. The shaping of the leg and the chair arm and support is done in a daring manner. There is a great deal of virile strength and character in it. The carving is boldly executed in a large and comparatively crude manner, and is expressive of the spirit of the times. People of Flanders were at that time and era engaged

upon bold undertakings, and the furniture of the period expressed their mode of living.

During two of the longest, and in many respects the most remarkable, reigns of any monarchs in recorded history, furniture styles were developed in a manner so rich that they have never been surpassed. We refer of course to the periods in French history when Louis XIV and Louis XV were on the throne. These two men, because of their personal interest, had a tremendous influence on this art and brought about rapid and remarkable periods of development. Large sums were expended and the best talent in Europe was employed in the royal workshops under the direct supervision of well-trained architects, artists, and master craftsmen. With favorable conditions such as these, great strides were made in the art of building fine furniture.

With the evolution from crude to finer forms, the cabriole leg also went through various stages of evolution. The example shown at B in Fig. 1 is notable for its gracefulness, its excellent proportions, and its fine balance. This example represents one of the finest developments ever created by the furniture craft. It is perhaps needless to add that there are innumerable variations of this leg. The finely scaled elements of decoration included all kinds of flowers and leaves as well as various rococo motifs, such as the rock-and-shell for which the Louis XV style is famous. There were scrolls, and diaper work was used for backgrounds. In the example shown at B, all of these types of ornament are represented.

The remarkable compound curves found on these cabriole legs add to the voluptuousness of the style, every detail of which was enriched to the utmost degree of extravagance.

Chippendale, who carried on his work during this time, was a great admirer of the Louis XV style and drew upon it quite freely. He used the cabriole leg on many of his finest creations, but most of his work shows greater restraint than the designs originating in France. The cabriole leg shown at A in Fig. 1 is quite rich even for a Chippendale leg, though occasionally he went to the same extremes as did the style from which he copied. The example at A shows the mark of French influence rather strongly, especially as regards the foot and the shaping of the leg itself. Chippendale's characteristic cabriole leg was more nearly the type shown in Fig. 2, at the right. It had the ball-and-claw foot and a decorated knee, but the rest of the leg was plain. The leg is rich enough for most purposes where it is to be used.

A very unusual but extremely interesting cabriole leg and arm support are shown at E in Fig. 1. Notice that there is quite a difference between the shape of this leg and the shapes of both A and B. This leg represents the best development of the cabriole shape during the Louis XIV period. The ornament at the front of the foot is known as a cabochon, while the grotesque face at the knee is a satyr mask. An animal head is used to terminate the handsome arm support. This example shows the great amount of ingenuity and re-

sourcefulness used by the cabinetmakers and designers of this outstanding period.

Two rather unusual feet, both of which are quite handsome, are illustrated in Fig. 1. The first of these, shown at C, while it probably had its origin in Spain,

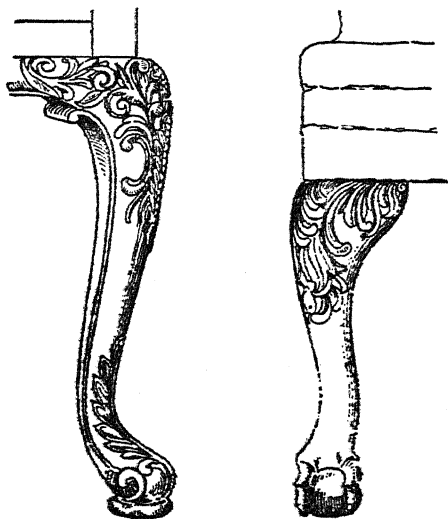


FIG. 2

was used extensively on Jacobean furniture, especially during the reign of Charles II. It is a fitting ornament for a fine armchair and it is not a difficult one to carve.

The second foot (F) is carved to simulate the head of a dolphin. It is found on some of Chippendale's most elegant chairs, and occasionally on other pieces which he designed.

The leg shown on the left in Fig. 2 is an example

of a richly carved Queen Anne type. It is graceful and well proportioned. At A in Fig. 3 is shown an elongated ball-and-claw foot. It is a type sometimes spoken of as a rat's claw and ball. Feet of this kind are com-

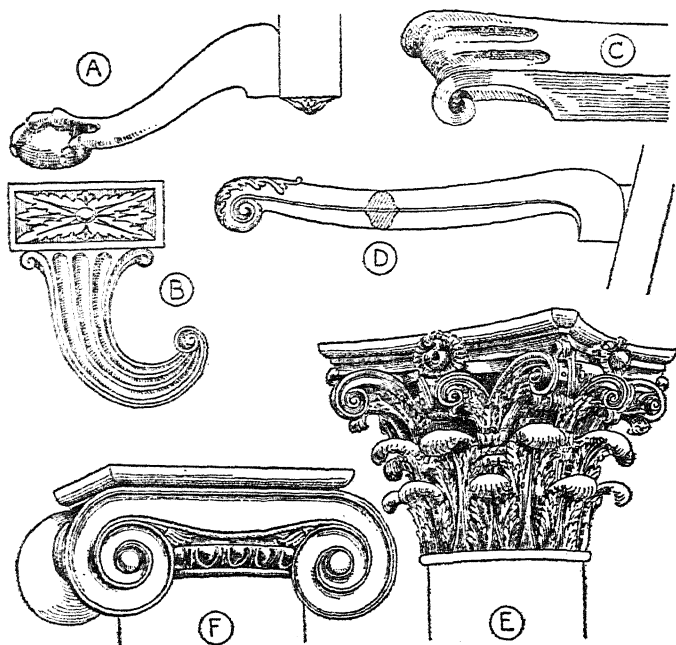


FIG. 3

monly found on the tripod bases of tilt-top pie-crust tables, pole screens, or similar Chippendale pieces. The foot is very dainty and appropriately scaled to the purpose for which it is used. Compare it with the heavier foot in Fig. 2, which was carved for a large upholstered wing chair.

The shaping of feet and legs of this kind is all important. Attempts are often made to carve them by machine, but in most such cases the results are not satisfactory unless they are gone over with hand tools. A beautifully formed foot and leg of this kind have much to do with the final beauty of the piece of furniture of which they are parts.

An uncommon sofa leg is illustrated at B in Fig. 3. It is shaped like a cornucopia—indeed similar legs were often carved to simulate a horn of plenty. This particular one however is fluted, the flutes ending in an involute scroll. The design has considerable merit, but structurally the leg is none too sound.

A simple but handsomely formed chair arm is illustrated at C in Fig. 3. It is a suitable terminal ornament for a light chair arm because it fits the hand naturally. A much heavier chair arm appropriate for a large Louis XIV or Caroline armchair is shown at D in Fig. 3. Great carved arms like these were often gracefully curved, both in plane and elevation, as shown in the example at D in Fig. 1. At times the centers of the carved scrolls were extended from the sides of the arm like those shown on the capital at E, Fig. 3.

So many acanthus-leaf motifs and scrolls are used in carved designs that it has been thought proper to include sketches showing the origin of these two beautiful and useful elements. It is generally believed that the acanthus-leaf designs originated with the Corinthian capital. Where the originators of this work of art went for inspiration is not definitely known—and

perhaps it makes little difference. It certainly is a remarkable element and one from which many beautiful designs have sprung.

The scroll, which we have seen used frequently in this work, had its inception in the volute found on the Greek Ionic capital. The Greeks probably got it from the sea shell. The curves forming this volute are never concentric. They spread farther apart as they unwind from the center. Adaptations taken from these original motifs may, and often do, vary considerably. The capitals themselves are frequently used in beautiful interiors as trim. Small graceful columns often flank an imposing fireplace of classic design. The capitals in modified form may cap a pilaster on each side of a cupboard or cabinet. There is hardly a limit to the ways in which these elements may be made to serve the designer.

In Fig. 4 are shown the various steps entailed in laying out and carving a cabriole leg with a ball-and-claw foot. D shows the pattern laid out on the side of the block from which the leg is to be carved; W indicates the width and thickness of the block of wood and H marks the height. The pattern is laid out at first on one side of the leg only. This may then be sawed to shape on the band saw. It is later laid out a second time on the adjacent side, and the leg is again cut on the band saw. The sawing should be carefully done, cutting close to the line to have it the same on both sides. The blocks indicated at the top of A, which stick out from the main plank, are usually glued on. A cabriole leg of this kind is often cut from stock

3-in. square. The block that is glued on usually protrudes $2\frac{1}{2}$ or 3 in. on such a leg. The cost of stock over 2 in. in thickness usually doubles in value for each additional inch in thickness so that by gluing these blocks to the leg considerable expense is avoided.

When the sawing has been completed, and the

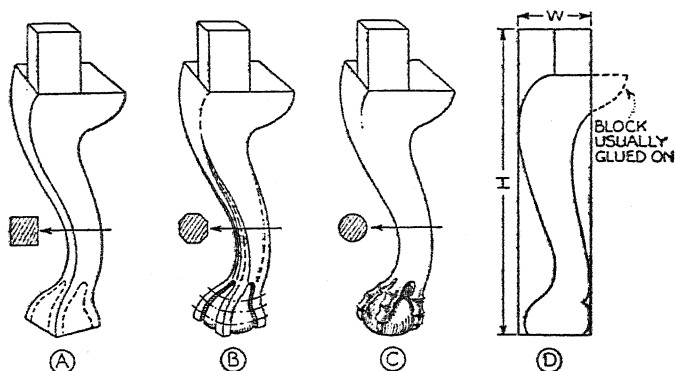


FIG. 4

blocks have been glued on, the leg is square in section, as shown at A in Fig. 4. Lines may now be marked on the foot to indicate where the toes are to be carved. The leg is then shaped above the foot for a considerable distance into an octagonal section. The octagon is never equal on all sides except where the leg is to be round, as in the example shown at the right in Fig. 2. The leg shown at the left in Fig. 2 was shaped to a hexagon instead of an octagon. This operation has been performed in step 2, shown in B in Fig. 2. Some of the roughing has also been done on the feet at B. By forming the leg into an octagonal

or hexagonal shape, it will be easier to have the design well balanced after it is completed than if all of the shaping were done on one side at a time.

The final step in the operation, which requires considerable skill, is shown at C. The toes are carefully rounded, without carving the knuckles. In other words, the toes will be carved in the form of rounded rolls until after they have been trued and undercut sufficiently to form the ball which they grasp. After this has been accomplished, the knuckles should be formed to complete the foot. These knuckles are usually laid out and kept in line as indicated by the parallel transverse lines in B.

The project designed for this chapter is a handsome Chippendale stool (Fig. 5). It is graceful enough to be used in a richly furnished living room with other authentic period pieces. The stool will serve as a comfortable seat, or it may be placed in front of an easy chair to make a lounging-chair combination. The legs should be made of mahogany, but the stretchers may be made of hard pine.

After the position of the toes has been marked, take a sharp V-tool, the end of which forms about a 45-degree angle, and begin to outline the toes on each side. Do no undercutting around the toes at this time; wait until they have been raised to the proper height. After they have all been outlined, take a skew chisel and begin to round the ball alongside the toes. While it is possible to do a great deal of this cutting with the straight chisels, it is here that short-bent tools are almost indispensable. Short-bent chisels may be used

advantageously to round the ball, and back-bent gouges are good to use in rounding and shaping the toes.

When the foot has been gone over the first time,

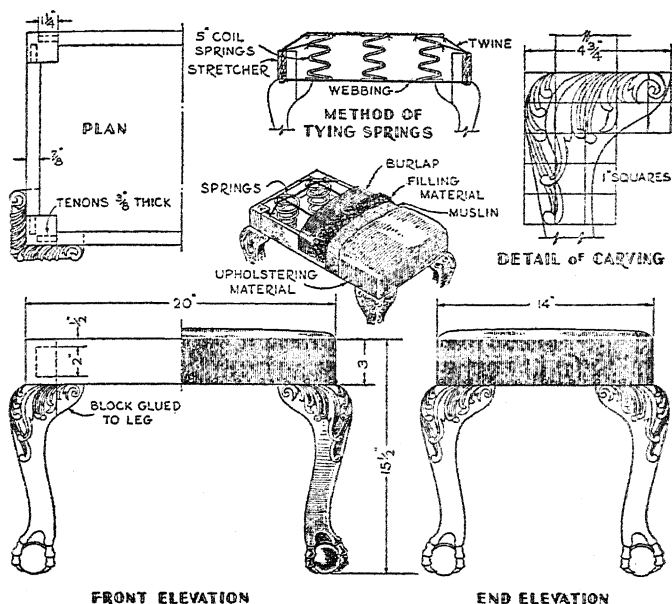


FIG. 5

go over the entire operation once more, cutting deeper around the toes and doing a little more rounding on the ball. Continue in this manner until the ball is practically finished. With the V-tool, start undercutting the toes, shaping them to a graceful roll. The tops of the toes may be rounded with a skew and with the short-bent chisel. When these have been sufficiently

rounded, begin to form the knuckles, using the short-bent chisel. Finish them with the back-bent gouge. Be very careful in shaping the toes to form them in a manner that will not make them look cramped. They should grasp the ball in a natural manner.

To upholster the stool, tack webbing to the bottom of the seat frame. Two strips lengthwise and three crosswise will suffice. Sew six 5-in. springs to the webbing where it is crossed, and tie these to the frame as shown. The springs should not be compressed to any extent by tying. After the springs have been tied, cover them with a good grade of burlap to prevent the filling material from going through the seat. Spread the filling material (either curled hair or moss) evenly in a layer about 2 or 3 in. thick, allowing it to hang over the sides as illustrated. Sew a few stitches through the filling material into the burlap to hold it in place. Next cover the filling material with muslin, tacking it as the diagram indicates. A layer of cotton felt may be placed under the muslin on top of the seat, if desired. This will aid in securing a smooth seat. Finally cover the seat with upholstering material, tacking it with brass-headed upholstering nails.

CHAPTER XI

ANIMAL AND HUMAN FIGURES

THE most difficult carving of all is the carving of animals, birds, and the human figure when these subjects are free-standing; in other words, carved in their entirety. This carving is a form of wood sculpture, and demands the same technique that is required to do a statue in stone. There are so many factors which enter into carving figures of this kind that it is difficult, if not altogether impossible, to give directions on paper which will be of any great value to a person engaged in such work. Skill will come as the result of study and practice. If one wishes to do a great deal of carving of this kind, we advise that person to make a special study of anatomy, using a good text book on that subject. Whole books are devoted to the anatomy of the human figure alone, while others may be procured which are devoted to the anatomy of mammals, fish, birds, etc.

It is of course important to be able to draw these subjects well, but that is only the beginning of the preparation necessary for the wood carver. The next step will be to undertake the modeling of free figures in clay. It will be well to make separate studies of, say, an eagle, modeling individual parts of the subject such as the head, a wing, a foot, etc. Finally the en-

tire figure should be modeled. Next an animal like the horse may be attempted. This will probably be slightly more difficult because the shaping of the muscles and other surface contours requires a more accurate conception of anatomy than is the case with a bird, which is covered with feathers that hide some of this detail. Very often it is possible to work from actual models such as plaster casts. If such models are available, it is advisable to use them at the start. There have been famous artists who have made the anatomy of animals a life study. The late Charles Livingston Bull was a painter whose animal subjects have become famous. While few wood carvers will wish to go into the subject as deeply as this, still for anyone who wishes to work with a fair degree of accuracy, some study along these lines is not only desirable but necessary.

Carvings by such a master as Alois Lang show the result of years of study and experience in a craft and these works deserve all the admiration that is usually accorded to fine paintings. Few wood carvers could duplicate the superb quality of Lang's workmanship. Many wood carvers are able to carve the human figure; some of these are able to carve a good likeness of the model from which they are working. Few, and very few, can so successfully portray the emotions as has been done by this master carver of Oberammergau. Every detail of his carvings is remarkable for its beauty—as the modeling of feet, the folds of garments, hair and beards, but most wonderful of all are the facial expressions of character and emotion.

It is such masterpieces exemplified by this man's work that every wood carver should have placed before him as a goal that he should strive to attain. We have no desire to discourage the amateur by holding before him a pinnacle which most amateurs can never hope to reach. Our aim is to bring the amateur in contact with examples of the very best work. Each amateur must set up his own goal; and his natural talent and perseverance will determine whether he will attain the goal which he has set for himself. One of the most commendable things about this craft is that no matter how fine an accomplishment there has been, there always remains a greater goal ahead still to be achieved.

The beginner will want to start carving something which is quite simple at first, such as the turtle paper weight shown in Fig. 1. When beginning to carve free figures, it is best to have at least two views of the subject on the pattern—a front and a side view. For more difficult subjects, three or four views may be necessary unless the carver has an unusual gift of visualizing things in the round. The drawings must be made to conform in size to the block of wood from which the figure is to be cut.

For a figure as simple as the turtle, it is probable that two views (a front and a side view) will be sufficient. To begin, cut the block of wood so that it is approximately $\frac{1}{8}$ in. longer than the size the finished carving will be. Draw the side view on the side of the block first. This should then be sawed out on the band saw or with a coping saw. The outline of the front

should be similarly marked on the wood and sawed to its approximate shape; or it may be chiseled. This preliminary shaping results in only a suggestion of the subject as it will appear when completed. The base of the paper weight is a part of the same block as the turtle itself. The third step consists of roughing in the shape of the turtle. Make no attempt at first to carve

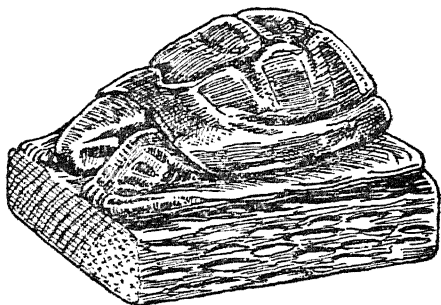


FIG. 1

individual elements such as the feet and head, but strive instead to form the subject to the approximate shape to be taken by the entire mass. Next take a V-tool, and with it indicate the dividing line between the shell and the head and feet. In shaping the head and feet, follow the same plan, that is, first rough them in to the approximate shape; this will be finished later to form the completed member. Once the rough form has been blocked in, it will be comparatively easy to make the finishing cuts needed to complete minor details. This procedure will be more clearly explained later when we consider the carving of the winged griffin shown in Fig. 4.

When carving in the round, the work is often difficult to fasten securely enough so that both hands may be free to do the carving. Some carvings are so shaped that it is just about impossible to fasten them in the vise, or to clamp them to the bench. Others have delicate members like the wings and feet on the

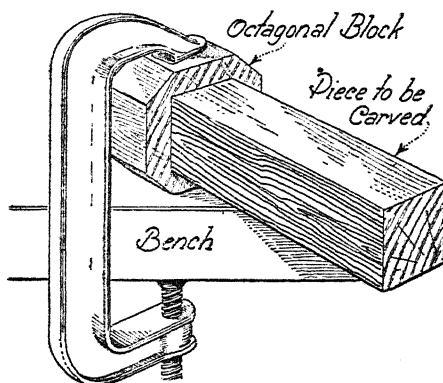


FIG. 2

griffin which are easily damaged or broken if pressure is applied to them. A carving of this kind is often fastened to a board with screws, and the board may then be clamped to the bench; or it may be glued to a piece of wood which can be clamped down, and sawed off after the carving.

In Fig. 2 is shown another method by which pieces may be held for carving. The wood carver may make an octagon-shaped block, larger across than the piece to be carved. The blank which is to be carved is then fastened with screws to this block which can be clamped to the bench very easily. Because of its eight

sides, the octagonal block may be turned to any needed position to make all parts of the carving easily accessible. This is a very effective jig for holding carvings like the peasant woman shown in Fig. 6.

Sometimes it is impossible to fasten the stock because of certain peculiarities of shape, and it must then be held in one hand while the other hand does the cutting.

A Spanish galleon with all sails set and billowed out before a stiff breeze makes an attractive model. The beauty of these ships can be enhanced by the wood carver who wishes to add a bit of colorful decoration. There is a great deal of romance connected with their history, and a model setting on the mantelpiece or on the chest in the hall recalls some of this adventurous past to our minds.

The part of the ship which is of particular interest to us in our present study is the winged-griffin figurehead (Fig. 3), which makes a fitting guardian for a man-o'-war with its bristling guns and proud bearing. The figurehead measures 2 in. thick by 4 in. high by $4\frac{3}{4}$ in. long. It may be carved from a mahogany block.

The first thing to do when carving a subject of this kind is to make sketches at full size, showing a side view and a front view. These sketches are shown in Fig. 3. A plan view may also be drawn if this is thought necessary to show more detail. It is a good idea to indicate the contour of each element on the figure as nearly as possible by shading.

The figureheads on Spanish galleons were probably

somewhat crudely carved. It is not likely that there was a great deal of very fine detail since it would have been impossible to appreciate it on a figure of this size which was usually viewed from a distance. The spirit of the original work should therefore be recaptured on a scale model. The carver may, if he wants to, show



FIG. 3

more detail than is shown in the completed figurehead in Fig. 4. He could, for example, carve scales on the body of the griffin, and show more detail on the head and wings. But for the purpose for which it is to be used, this is not in our opinion considered advisable.

When the sketches have been drawn, the figure may be modeled in clay if desired. The outline of the side elevation is then transferred to the block of wood and this profile is cut on the jig saw to form the blank shown in Fig. 4. It makes very little difference where the cutting is started, but considerable care is required

to prevent sections like the tips of the wings from being split off. After the blank has been cut, mark the remaining parts which are to be removed, such as those between the wings and around the feet. These will have to be cut out by hand with a coping saw.

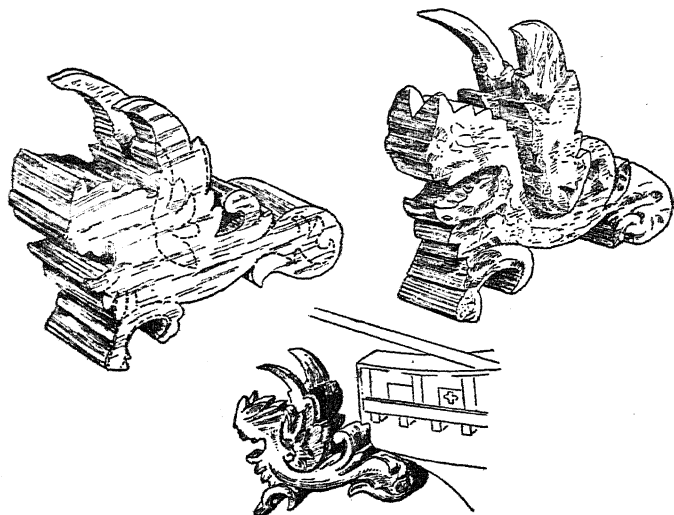


FIG. 4

Next draw in the details such as the wings, face, etc., all of which are indicated in Fig. 4. Some of the outlines will be cut out as the work progresses and must be redrawn from time to time as they are needed.

To begin the carving, first make a deep V-cut around the lower part of the wing on each side. Begin to shape the body around the wing, using the shallow gouge to do the shaping and the V-tool to get the depth and outline around the wing. Next trim away the excess

stock around the fore part of the body, the head, and the feet. The head and body are cut to a thickness of only $\frac{3}{4}$ in. at the front, while the feet are $1\frac{1}{2}$ in. apart on the outside. Then trim the tail to its proper thickness, which is about 1 in. at its extreme end, though a little thinner on top. The small scroll which curves up from the back, directly behind the wings, is approximately $\frac{3}{4}$ in. thick at the top. Up to this point no individual parts of the figurehead have been modeled with the exception of a very little that has been done around the lower part of the wings.

It is now possible to start roughing in the modeling on the various members. One may begin on the head. It is best, as a general rule, to do those parts first which are least likely to be broken off in handling. Elements such as the wings and the feet should be finished last because as the wood is removed they are constantly being weakened. If they are carved first, they may accidentally be broken off while shaping the other parts.

When the head has been roughed in as shown in Fig. 4, proceed to rough in the outside of the feet, the tail, and the outside on the lower part of the wing. Continue shaping the body as these other members are being roughed in until the carving looks like the upper right-hand one in Fig. 4. Some forming has been done on the back of the wings when this stage has been reached.

Next draw in the final details such as the teeth, eyes, the scrolls on the lower part of the wings, the foliage on the tail, etc. Carve these parts rather carefully with

small finishing tools. The wings are hollowed out considerably with fluting tools. The carving and shaping of the wings and feet require the greatest care to avoid splitting them. The forming of the teeth also requires care for they are small and sharp.

The figurehead should not be touched with sandpaper since it is desirable to show every mark of the tool on a carving of this kind. The one on the galleon was gilded with deep gold bronze paint of a good quality, but it could have been colored with oil paints. It is fastened to the prow of the ship with a long screw.

In Fig. 5 is shown the top of a fine mirror frame adorned with a carved spread eagle. The latter was a favorite motif on early American mirror frames. The tops of the mirror frames were formed with jigsawed scroll work, often enriched with a bit of fanciful carving. Some of these frames were quite large but the majority were small, the glass they held measuring about 14 in. x 24 in. Good ones are greatly prized and sought for by collectors.

An eagle, like the one shown in this design, is not very difficult to carve. The size of the eagle will depend upon the size of the mirror frame on which it is to be used. Quite often only the front of the bird is carved because one seldom sees the back of a mirror. In this case, the block of wood from which it is to be cut need not be very thick. From a 2-in. piece an eagle for quite a large mirror frame can be carved.

One should have enough stock to round the front of the body considerably and still have enough left to hollow out the wings which are set well back. A front-

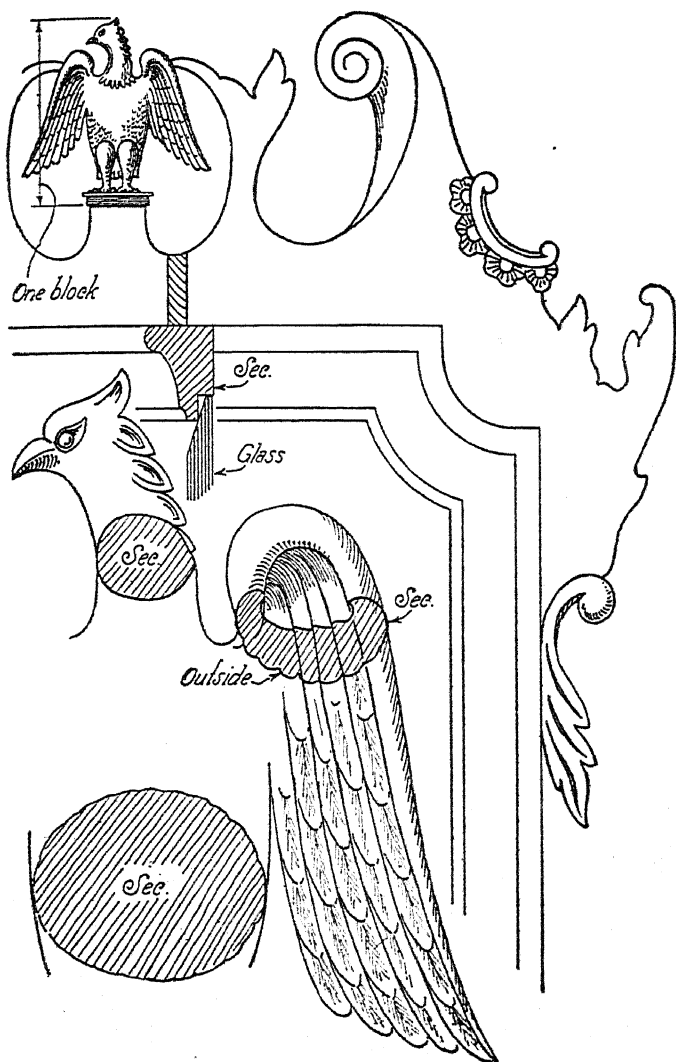


FIG. 5

view sketch is about all that will be needed for this project. Draw it on the block of wood and saw out the blank. Draw lines to indicate the places where the wings meet the body, and also where the legs are joined to the body. Cut deep grooves with a fluting tool where the wings and the body come together, making the groove deepest at its lower end. Leave a greater amount of stock at the top so that the shoulder may be brought forward and properly rounded.

With the flat gouges and the skew chisel begin to round the body which will be shaped like the side of an oval at the front. Work around the legs, thinning the stock as you work down toward the bottom of the tail. The highest parts of the legs and the highest point on the breast will be about level with each other. The lower ends of the wings and the tip of the tail will be back about the same distance. Now round the neck and shape the head. The top of the head should be brought forward as far as possible, but the lower part of the neck will recede to allow the breast to be curved back toward the neck. Work in the eyes, shape the beak, and model the feathers which bristle out from the back of the neck.

Next draw the lines where the outsides of the wings are curled over, and hollow the insides of the wings under these lines. Now round the outside edges. Then carve the inside surface of the wings as shown in the cross section on the detail sketch to make the feathers appear to overlap each other. This is done by making shallow grooves with the V-tool where the feathers join, and then slanting the surface of each feather over

toward the groove. Shape the end of each feather, especially near the bottom of each wing, and complete the job by threading-in the fine hair lines with a V-tool.

The body of the bird need show no feathers except a few near the end of the tail. It may be finished with carefully cut parallel lines made with a fine veining tool. Finally shape the feet of the eagle to complete the job.

Wild-animal subjects arouse our interest and curiosity because they represent a world strange to most of us, and wooden models of them will have a similar effect. Domesticated animals are also good subjects because most people love them and associate models with animals they have owned, such as a dog, a cat, or a horse. There are many opportunities to study this latter class at close range so that almost anyone can have good models with which to work.

No matter how interesting a subject an animal, a bird, or a fish may be for wood carving, the most interesting of all will be another fellow human being. This is probably so because man possesses something which no other living thing manifests—a soul. We may speak of it as character or give it some other name, but its presence is indicated by man's sundry virtues. Whatever it may be, it is an intangible force which, though the exact essence of it remains a perpetual mystery, sets man apart from all other forms of life.

It is something of this soul that we try to capture in art, whether it be in a picture or a carving. The work of the artist who can do it best is almost certain to win world-renown and such a masterpiece fires the

ambition of legions of artists, contemporary and future. So the wood carver who has reached the stage when he feels competent to do carving in the round will wish to do a carving to represent a human being.



FIG. 6

Realizing this, we have included here an exceedingly interesting subject in the form of an old peasant woman, to be known as Mère Marthe (Fig. 6). Mère Marthe is an old Swiss peasant woman on her way to church. Here the human appeal is simple and direct. We can see that Mère Marthe is a person of simple faith who lives close to the soil. Her clothing and the prayer book tell us something of this. Her aged stoop

and kindly expression, which could only have been placed there by years of toil, of sorrows, and simple joys, give to this figure an appeal which makes it an excellent subject for anyone to carve.

To carve *Mère Marthe*, you will require a piece of straight-grained wood measuring $2\frac{1}{2}$ in. x $2\frac{1}{2}$ in. x $5\frac{1}{2}$ in. She has a billowing skirt and the block will therefore need to be as thick as it is wide.

Make a pattern by laying out $\frac{1}{4}$ -in. squares on a sheet of paper and drawing the outlines as shown at A in Fig. 7. This gives a front and a side view, both of which will be needed to saw the blank. In this case, both the patterns may be laid out on the figure at the same time.

Saw in first on all the horizontal lines on every side. Follow this by cutting out the lines along the back and sides of her head. Next saw part of the way on all remaining lines from the side, leaving the wood fastened to the block for the time being so as not to lose the guide lines. Do the same thing on the front of the figure. The lines for the feet are sawed next, and these may be cut all the way in immediately. *Marthe's* left side can now be cut free entirely; after this, cut the lines of the back. Follow by sawing off the right side and finally cutting away the front.

On the blank which will now look like the sketch shown in Fig. 8, draw the old lady's face, her kerchief, and the outlines of her arms and apron. If you will draw patterns as shown at B in Fig. 7 and make small templates from these for the arms and hands, they

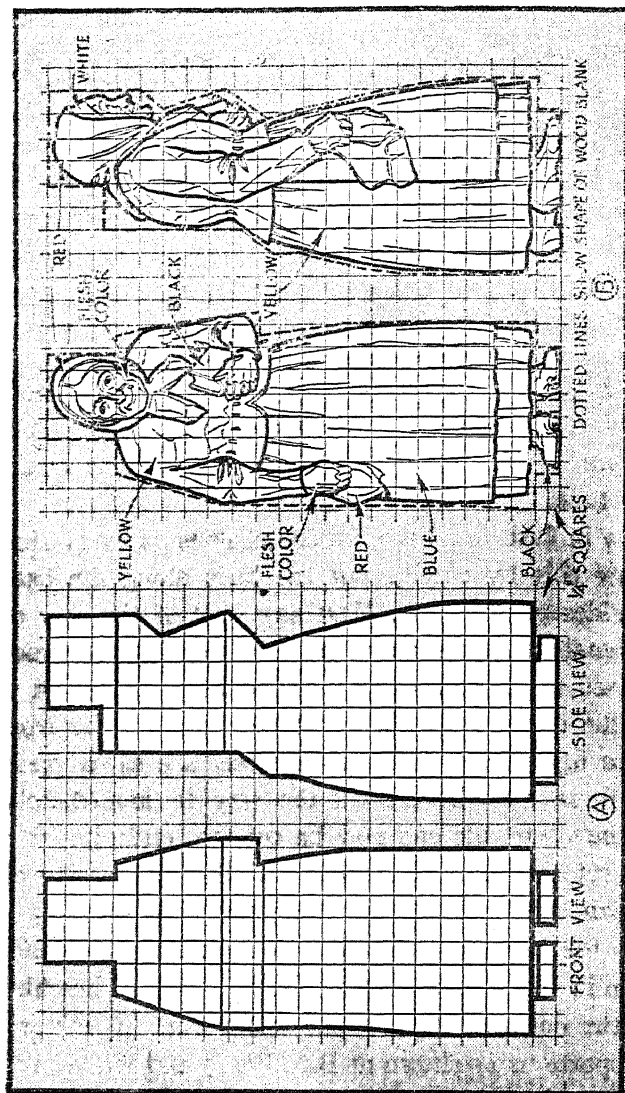


FIG. 7

will help in marking exactly the position of these parts on the blank.

Now begin to round out the head and skirt. This may be done with shallow gouges and the skew chisel. Cut along the right arm, on the inside, with a V-tool

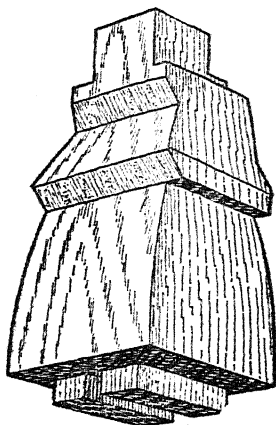


FIG. 8

and start to round this arm at the same time as you round the skirt. Rough in all members before getting down to fine details such as fingers, folds of the skirt, etc. The feet can be finished next as shown at A in Fig. 9. Study that sketch carefully before you begin to cut away wood. Notice that both feet turn slightly outward and that the right foot is advanced to make the figure stand solidly.

From here on it is mostly a matter of finishing details. Delicate parts such as the hands, face, prayer book, and kerchief knot should be finished last. Groove

the skirt into folds, using the V-tool, the square-U, and other finishing tools. Outline the apron and the handkerchief with the V-tool and complete them with narrow gouges and veinners. The sketches shown at B

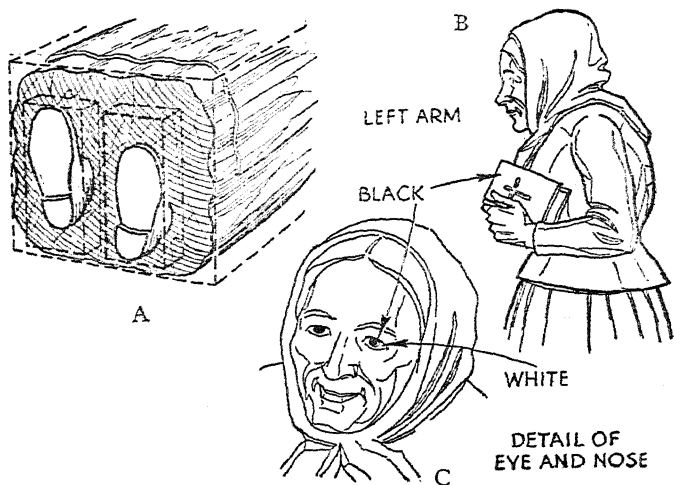


FIG. 9

in Fig. 9 and B in Fig. 7 will help to get the proper shapes for these details.

Finish the face of the old lady last. This will be the most difficult part of the work. The sketch shown at C in Fig. 9 will aid you if you study it carefully. It is always best to make flat cuts with a shallow gouge at the beginning to get the proper contour, and then round these later to soften the lines a bit. Start forming the face by cutting along each side of the nose at first. Then hollow the eye sockets, shape the mouth and chin, and finally cut the eyeballs.

Use soft colors in painting this figure—garish or bright colors will ruin its appearance and make it look like a cheap toy. Oil paints are best. In mixing the paint, add a little, a very little, of the complementary color. In other words, to the yellow for her blouse and skirt add a tiny touch of purple (red and blue); to the blue for her apron add a touch of orange (red and yellow); and to the red for her handkerchief add a touch of green (yellow and blue). Outline her handkerchief in white; put narrow vertical stripes of dull red and white, alternating about $\frac{1}{4}$ in. apart, on her apron. Her hair is white; her lips red. With a touch of the knife or paint brush you can vary her expression as you wish. Her shoes and prayer book are black, the latter having a gold cross and gold edges.

Mère Marthe may be made twice her indicated size by using $\frac{1}{2}$ -in. squares, which makes the piece easier to carve; or she may be half her size if $\frac{1}{8}$ -in. squares are employed.

In Europe among the peasants, especially the Germans in Bavaria, it is still customary for people in many homes to spend their evenings in pursuits such as wood carving. They build castles and palaces in miniature. The young members of the family learn to carve by doing the simple things, such as dinner plates, cups, and other tableware, while the more experienced members of the family carve the dolls, the furniture, and other objects which require a greater amount of skill and perseverance. It is perhaps unfortunate that Americans generally lack the patience necessary to do things like this. Such handicraft makes life richer and

as the years roll by, hobbies of this kind would build up a heritage for future generations that would be worth preserving in our great museums which are at present filled largely with objects imported from foreign countries. It would do more than this by creating a beneficial pastime for a growing generation which sadly lacks the skill necessary to compete with skilled foreign craftsmen who come to our shores. The United States can use a great deal of such skill and it is too bad that more of it cannot be supplied by native craftsmen.

There is, however, one encouraging sign on the horizon. It is the growing interest in hobbies. Perhaps this is one blessing among the few which can be credited to the economic depression. Men and boys are spending more time in home workshops at absorbing and instructive hobbies, and they are finding that it pays dividends in added joys of living as well as an increase in spending money if they care to turn the hours so spent to cash. Many of these home craftsmen have banded themselves together in clubs for the mutual benefit of the members. This has brought about one or two national organizations with which many individual clubs affiliate. These affiliations sponsor hobby shows, reward outstanding accomplishment, and encourage the building of more worth-while projects. These hobby shows also bring forth many new ideas, thereby enriching and broadening this field of endeavor.

Activities of this kind are bound to foster greater appreciation for art and industry in America. Tools

and materials in quantity and quality never known before are available to the craftsman today. In view of this fact we have a greater opportunity than any people had in the past to produce fine handiwork. Power, which takes the drudgery out of many of the operations required to do beautiful and useful work, is cheap and readily available. Let us make greater use of all these facilities at hand.

CHAPTER XII

SOURCES OF ORNAMENT

NEARLY every important form of wood carving has been covered in the preceding chapters. The various types have been classified, and as far as possible we have attempted to grade the different types of carving according to the skill required to execute them. The easiest forms of carving were treated first, and each succeeding chapter has taken the reader a step in advance of the chapter before it in so far as the skill required to do the carving was concerned. In each chapter the projects which could be built were also described and graded, as nearly as this was possible, from the easiest to the most difficult. As we proceeded with the work, the discussion in the book has been supplemented by related material which we consider necessary for every wood carver to know something about. Such subjects were a brief discussion of tools and how to take care of them, the woods which may be used, and the making of patterns and designs.

In the present chapter we will deal with another supplementary phase of the work—the sources of ornament for carving and the various kinds of designs which may be derived from each of these sources. This is an important adjunct to the knowledge which every carver must possess. The chapter will contain a

great deal of information which should help to make it easier to select ornamental designs from the vast amount of possibilities which are available.

There are three great sources to which the wood carver may turn to select his ornament. He may get his motifs from *abstract forms*, from *nature*, or from *artificial objects*. Each of these three main sources is subdivided into a great many minor divisions, most of which were drawn upon by each school of historic ornament; and also for the designs in this book.

All abstract motifs spring from geometry. In other words, they are all based upon geometric figures such as the square, the circle, the triangle, etc. The very term "abstract" means something apart, and that is just what abstract ornament is. A triangle has no weight, no mass; it is nothing upon which you can lay your hands or which was created by nature. Neither is a circle, a square, or a rectangle. These figures are symbols, nothing more. They represent a certain shape to us. We say, "The pediment of the bookcase is triangular," and this immediately presents to anyone's mind the image of an object whose boundaries are three straight sides, forming as many corners where they meet each other. The triangular-shaped object is something definite which you can see and touch; it has mass and weight, but the triangle itself is only the symbol which by association with similarly shaped objects recalls a definite image to our minds.

All ornament which is based upon geometric sources is composed of combinations of circles, triangles, ovals, squares, and other geometric figures, or their com-

ponent parts. The patterns which it is possible to make by this method cannot be numbered. Every great historic school has made use of them in their designs, some favoring them more than others.

One of the most notable developments of this type of ornament was the Gothic school. In Gothic ornament, the principal element is the marvelous tracery and the ribbed structure which is formed into various intricate patterns of remarkable beauty. An example, showing its application to furniture, is the Spanish *vargueno* shown in Fig. 5, Chapter VIII, where it is used on the carved drawer fronts.

Still another notable instance of the use of abstract ornament is chip carving. All chip-carved designs are purely geometric constructions, used in various combinations to form the interesting patterns shown in Chapter III. Some of these are quite simple, like the carved star shown in Fig. 9 which is made up of a number of triangles. A practical application of this same motif is given on the tray in Figs. 14 and 15, Chapter IV, which shows how such a simple motif may be put to work to beautify a useful object. The handkerchief box, Fig. 17, and the photograph frame, Fig. 18, in Chapter III are very attractive and useful projects, ornamented entirely with this one kind of abstract design.

The sampler shown in Fig. 1, Chapter IV is filled with abstract motifs which may be adapted to borders, backgrounds, and other purposes. The designs are made up of elements taken from the circle, the triangle, etc.

Strapwork patterns, which are used extensively for flat-surface carving, are all based upon geometric constructions. They consist of interlaced ribbons and bands, diamonds, circles, triangles, and other elements. The principal element of the motif for the treasure chest in Fig. 4, Chapter V is an abstract one—a large diamond, with a minor naturalistic note. The borders shown in Fig. 6, and many of the designs for panels shown in Fig. 7, Chapter V have abstract ornament as their principal element, or are entirely composed of geometric figures.

Still other noteworthy examples of abstract ornament are the carved spirals shown in Chapter IX, Fig. 3. So also are the fluting and reeding found on the chair and table legs in the same chapter. Many plain moldings, and carved moldings too, are made up of abstract forms; outstanding among these being the egg-and-dart molding which is a classic design of great distinction. Then there are numerous other elements, such as lozenges, bosses, the guilloche, the cartouche, diaper work, the cabochon, and a host of others. It would in fact be quite a difficult task to name all the varieties of ornament derived from this one source.

The second great source of ornament is nature. It is without a doubt the greatest and most important of the three sources. The designs derived from nature may be divided into three groups. Under the first group we have those patterned after human or animal forms. The second group is composed of motifs derived from plant life; the third group is a somewhat artificial

adaptation of rock and shell motifs and various other marine elements.

The first two divisions of the nature group are very large. One can find plenty of designs in either one of them. Take the ones derived from human forms, for example. Busts of noted people are good subjects to carve, either on plaques, panels, or in the round. One may visit almost any high school in the country and find busts of Lincoln, Shakespeare, Milton, and other famous personages which are suitable for models.

Great use is made of all kinds of partly draped and undraped figures, especially on classic ornament. They were carved in bas-relief in stone, on wood, and on metal. Some of these, found on pediments of important Greek and Roman public buildings or temples, are exceedingly beautiful. Others, carved in the round, such as the Winged Victory, the statue of Apollo, and the sculptured figures of many ancient gods and goddesses are examples of the very finest kind of art. A thousand years after the decay of the Roman Empire came the Gothic period with its remarkable carvings of saints, apostles, and other religious characters. The Gothic period, as well as the classic and neoclassic periods, made great use of figures carved in a grotesque manner. These included Minotaurs, satyrs, fauns, and other demonlike representations of various kinds. We find many examples of grotesque figures in the carvings of China, Japan, and other oriental countries where artisans carve figures to represent their gods and use these for ornament.

After the Gothic period came the Renaissance, when

appeared more humanistic motifs. This period restored the classical conception of the use of the human form in art. The 17th and 18th centuries furnish us with many fine examples of the carving of nude figures, especially the work of the French school in the 18th century.

Another source in this division of ornament, which we must not neglect, is the various forms of aboriginal art represented by the masks, figures, and statuettes carved by primitive tribes of Africa, by the South Sea Islanders, and by our own American Indians. The African Negro has developed carved ornament which is unique and important, and it forms the basis for a great deal of modern art. This will be, indeed it already is, a fertile source of design. The American Indian carved the totem pole, and the Aztecs of Mexico left an abundance of excellent carving.

Last of all, but not least in importance, is the great number of subjects which may be taken from the characters associated with our everyday lives. These include carvings of children or a homely character, carved in the round, like *Mère Marthe* in Chapter XI. The wood carver has unlimited opportunities to carve projects such as boxes, chests, plaques, and other items on which he may use the human figure to illustrate scenes from history, fables, fairy tales, folklore, etc. There is a certain wood carver who makes a specialty of carving scenes of Indian life on furniture. He depicts them hunting, fishing, in battle, and following their various pursuits before civilization drove them from their heritage. Such a subject makes excellent

material for the wood carver, and this great American theme deserves more adequate exploitation than it has been accorded in the past. It is a feature of American life which is disappearing, and carving is one good way of preserving its record for future generations.

The second subdivision of the group derived from nature comprises both the wild and domesticated animals; here figures are also patterned after various animals which had their origin in fiction rather than fact.

All kinds of wild animals make good subjects to carve, as we have pointed out before. The elephant is often carved as a partly free figure on a pair of book ends. This animal gives the impression of weight, which is a desirable feature for book ends. But aside from their use as ornament for some utilitarian project, these subjects are very interesting when carved as a decoration for the mantelpiece or a shelf in the library. The attention which carvings of this kind will attract will depend upon their execution as well as upon the particular subject which is chosen. For example, a snarling lion with bristling mane, powerful and bulging muscles, and lashing tail poised ready to spring upon his prey, could hardly fail to command attention, if the carving is only ordinarily well done. A buck deer, with head erect and with spreading antlers, is a subject slightly less exciting perhaps but still full of interest. A serpent with fangs exposed, coiled ready to strike, is a subject which may not appeal to everyone's taste, but it arouses interest.

One need not choose animals of which it is quite so

difficult to get models, or to observe at first hand. There are good subjects at almost everyone's doorstep, such as the scurrying squirrel, the frog, the rabbit, and other animals which are not as ferocious and therefore not as dangerous to observe at close range as some of the animals named before. The turtle shown in Fig. 1, Chapter XI is another good example.

When carving animal subjects, it is not necessarily faithful reproduction that makes them interesting. It is more important to create the subject in a somewhat original manner, by exaggerating or developing certain features or characteristics, such as the bulging eyes of a frog, or the swelling of a lion's muscles. It is the unusual which attracts attention, though this feature need not be carried to far-fetched extremes in order to produce the desired effect.

Much artistry is being created now in the modern manner. This is apparent in wood carving as well as in other forms of art. Figures are being carved in odd poses, and they are being carved in a semigeometric form. This manner of interpretation is hailed by some as original expression, while to others it lacks the appeal of the older and more familiar forms. It must be admitted that a great deal of this work is of good quality. To have merit, it must express its meaning clearly, leaving no doubt in the observer's mind as to what it represents. If it fails to do this, it is not good art and hardly worth bothering about. Good art always represents truthfully some important idea, fact, or purpose. If this idea, fact, or purpose is not made clearly evident to the observer, then the work has

failed in its purpose and cannot, by any stretch of the imagination, be called good. One should never have to guess what a carved figure is supposed to represent.

An interesting phase of this kind of carving is represented by the animal feet used on chairs, such as the cloven hoof, the ball and claw, and lion's feet. The latter were found frequently on Empire furniture, but are not particularly handsome. The ball-and-claw foot, however, is a very beautiful element when well carved. Several examples of this distinctive design are shown in Chapter X. This foot is said to have been adapted from a Chinese source, and is supposed to represent a dragon clutching some valuable gem. Whatever its origin, it certainly has proved to be a valuable addition to the ornament which may be used on fine furniture.

Many kinds of grotesque forms have also been developed from animals. Some of these have come down to us from ancient times, when man's limited knowledge of the earth and its creatures caused him to give credence to all kinds of supernatural tales about monsters which were said to inhabit the unknown wildernesses of far-flung territories. Many of these fantastic figures were figments of the imagination, fostered by commonly circulated superstitions. Each age discarded or modified some of the superstitions of periods in history which were just past, but it also added more of its own. The Greeks had their Minotaur, a monster believed to be half man and half bull, and many other mythical creatures. The Romans believed that Scylla, a she-monster supposed to inhabit a rock off the Italian

coast, devoured ships which were so luckless as to be caught in the whirlpools of Charybdis. The pet monsters of the Middle Ages were dragons, with fiery breaths, great lashing tails, and slashing talons. Most of these superstitions were symbolized in the art of the age which fostered them and the more credulous the age, the more monsters they believed in. The art of the Gothic period is filled with all kinds of grotesque carvings, as for example, the carved gargoyles on Gothic cathedrals. All of these motifs are still good themes for carving to this day, and they lend a touch of romance which makes the craft all the more absorbing. The winged-griffin figurehead, on the Spanish galleon, is another example of a motif belonging to this class of design. (See Figs. 3 and 4, Chapter XI.)

The third division of the animal group consists of birds and all kinds of feathered fowl. It may also include butterflies, moths, beetles, and other insects. Birds were favorite subjects for decoration on certain types of furniture during the 18th and the 19th centuries. The eagle was used on tops of mirror frames and tall clock cases and on pediments of cabinets and secretaries. This figure was usually carved as a finial and placed in the break of a swan-necked cabinet top. The eagle was a particular favorite with American cabinetmakers for this monarch of the air captured the fancy of American pioneers and became a national symbol. The owl was sometimes carved, though it never became very popular as decoration for furniture. The figure is occasionally found, however. The gamecock was carved and used as an ornament for the tops

of cabinets and mirror frames. Other feathered creatures which enjoyed some popularity were the swan, the stork, and the dove. But the eagle overshadows them all, and a good example of its proper application is shown in the mirror frame, Fig. 5, Chapter XI.

The fourth division of the animal group is made up of fish. Of these the dolphin is by far the most frequently used and has earned the greatest popularity. It makes a very decorative and rich ornament and has proved to be a valuable addition to furniture design. It is used as a foot on exceedingly rich examples of Chippendale furniture. (See F in Fig. 1, Chapter X.) It is also used as a foot on Louis XV chairs and tables. An interesting method of using the dolphin is shown in E, Fig. 1, Chapter X. The design has been used as ornament on panels and many other places. It is carved in relief as well as in the round. The dolphin is more commonly called the porpoise. Other fish and marine life which are often adapted to carving are the sturgeon, the crab, the lobster, and the starfish. Most of these have characteristics which make them easy to distinguish.

The second group of ornament which is taken from nature consists of various forms of plant life. It is probably the most important class of elements for the wood carver. More motifs are derived from this group than from any other. The reasons for this are quite obvious. It is easy to get good models from which to work, and the models may be readily arranged and kept in place while they are being observed or studied. The variety is exceedingly great, and the subjects have

excellent decorative value. Most plant parts are also comparatively easy to carve—much easier as a general rule than motifs from the animal kingdom.

The first division of this group is composed of trees and their trunks, bark, branches, and leaves. Trees themselves are very decorative in carvings, and they have sufficiently varied characteristics to make good design motifs for a number of purposes. The pine, for example, is tall and straight, and its branches make a decidedly different silhouette from that of the oak. Then we have the weeping willow, with its drooping and low-hanging branches, and the spruce with its cone-shaped top; both of these make first-rate subjects. One craftsman we know carves landscapes. He makes a specialty of carving early colonial homesteads, looking much as they did during Revolutionary times; and other old historical structures. These carvings seldom measure more than 18 in. x 30 in. and for one of them he receives \$200. On these landscapes, trees and bushes figure importantly, and the branches are often deeply undercut so that certain sections stand entirely free from the background.

In subjects of this kind there is seldom any attempt to show individual details such as a single leaf because obviously, on a small carving such as this, the reduced details would be very difficult to bring out. Instead, large clusters of leaves are shown as a unit as they would appear on a tree if the observer were some distance away from it. Other pieces of work, somewhat similar but requiring a different technique, are Egyp-

tian designs such as the one shown in Fig. 14, Chapter VI.

The most important single element found in carved ornament is the leaf, in one form or another. The acanthus leaf, with its deeply serrated edges, is by far the most popular. When correctly carved, this leaf has large "eyes" where the serrated projecting parts are joined to the main body of the leaf. These eyes are shown in the carving on one of the jewel caskets in Fig. 12, Chapter VI and on one of the book-end designs, Fig. 10, Chapter VI. There are other examples throughout the book.

There are many more decorative leaves suitable for carving. In fact almost every leaf has decorative value. The leaves found on native American trees will furnish the designer with plenty of material. Some which are especially good are the oak leaf, the leaf of the tulip tree, the holly leaf, the maple leaf with its distinctive shape, the leaf of the box elder, and that of the sweet gum. The elm leaf is good because of its very prominent ribs. Many others could be named but it is hardly necessary to enumerate each one (see Fig. 11). The leaves of many bushes will also be found suitable. Among these may be mentioned the cactus.

We must not neglect to say a word about the fruit and flowers of trees for in many cases they are important sources of design for the wood carver. The flower, together with a spray of leaves, of the swamp magnolia makes an interesting decorative element; so does the flower of the tulip tree, the key of the maple,

the blossom of the dogwood, the acorn of the oak, and the cone of the pine tree.

The second division of the plant group, from which the wood carver may draw his designs, includes the various species of flowering plants; also the water

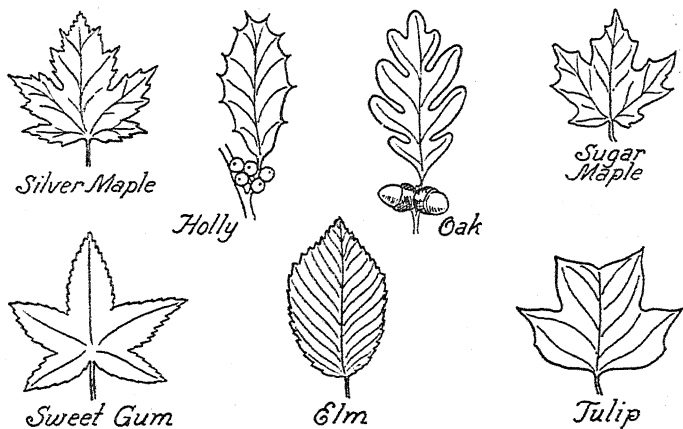


FIG. 1

plants, cereals, fungi, ferns, etc.; their leaves and flowers. The division embraces the various cultivated plants and flowers, such as the rose, which is a very important one to the wood carver, the crocus, the daffodil, another good one to carve, the tulip, the pansy, the poppy, the nasturtium, the purple iris, the sunflower, the petunia, and the sweet pea (see Fig. 2). Motifs taken from a few of these plants are shown in the designs in this book, notably the tulip shown in Fig. 8, Chapter VI, and in one of the panels illustrated in Fig. 7, Chapter V. Flower designs are shown in Fig.

10, Chapter VI, Fig. 5, Chapter IV, and at other places throughout the book.

Among wild flowers one can find good examples,

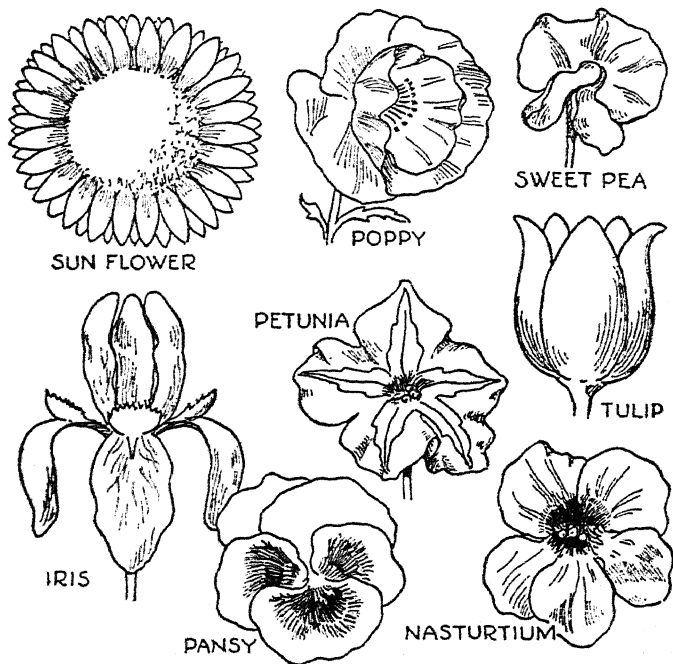


FIG. 2

such as the jack-in-the-pulpit, the violet, the lady's-slipper, the primrose, the water lily (its leaves as well as its blossoms), the cat-tail, the daisy, the aster, the thistle, and a host of others. Some of these are represented in designs in the book, for example, the aster in Fig. 7, Chapter V. In the case of most of these

plants, the leaves are as important as the flower in making fine designs. In order for a design to be good, it must be conventionalized and adapted to the medium on which it is to appear—in this case wood. It is seldom advisable to carve it exactly as it is found in nature. A rose carved as nature made it will look artificial in wood.

The various cereals, such as corn and wheat, furnish excellent motifs for carving. A wheat ear is shown used in the design of the bread tray in Fig. 13, Chapter IV. A partly husked ear of corn makes a good design for carving.

The third division of the plant group consists of fruit. Some fruit is highly decorative when carved, especially if the theme is well adapted to the design. A motif which has always found great favor with wood carvers is a cluster of grapes. Both the fruit and the vine are highly decorative if not too naturalistically carved. A good example showing these elements properly conventionalized and beautifully adapted to the medium, is the carved crucifix in Fig. 4, Chapter VIII. Besides grapes, good designs are made from the blackberry, banana, pear, apple, pomegranate, a cluster of cherries, the plum, pineapple, etc.

The last group in the series which comes from nature is the various rock and shell motifs. Some of these, known as rococo motifs, are fanciful derivations taken from rocks and sea shells, and they compose quite an important group for the wood carver. This group was an important one from the earliest times,

but it reached its highest form of development during the Louis XV period in France.

The first division of the group consists of the shells of mollusks, which are highly decorative in themselves, being beautifully formed into shapes as nearly perfect as any that can be found in nature. Their wonderful formation was recognized as good material by the designer and wood carver in ancient times.

Sea shells are found in many different forms. It has been estimated that there are as many as 60,000 varieties of mollusks, to which division of marine life these shells belong. Of these, the conch shell, which is horn-shaped, and the scallop shell, which is fan-shaped, seem to be the most suitable for carving. The conch shell often contains the volute, from which the involute scroll was developed. This is a very valuable motif, especially in architecture, and is also greatly prized by the wood carver. The shell of the scallop is shaped like an opened fan, having in most cases pronounced ribs alternating with deep grooves, and serrated edges. The wood carver may vary and adapt these original motifs to suit his taste. The scallop shell is shown used as ornament on the Queen Anne chair leg sketched at I in Fig. 15, Chapter VI, and at other places.

These motifs were used in somewhat different fashion, however, by the designers of the Louis XV period. In the ornament they designed, the shell was the central theme, surrounded by a great deal of other ornament, usually rich foliage, fruit, flowers, etc. A char-

acteristic Louis XV detail is shown in Fig. 3. This figure is balanced by the "occult method," as was much of the decoration used during this rich period. Considerable ingenuity was shown in using many of the motifs that were developed. For example, details were



LOUIS XV
DETAIL

FIG. 3

included to represent rocks and shells with water dripping from them. The shell shown in A, Fig. 4, has a suggestion of this, though in many cases this feature was considerably more pronounced. The rock with the dripping sea water, in fact all representations of rock, is the second subdivision of this group taken from nature. Water itself should perhaps be added, as it may appear in a wave about to break, as a singing rivulet, or a rushing, spray-filled waterfall. Carved

representations of water are sometimes carried out very successfully.

The third major group from which the wood carver gets motifs is made up of artificial objects. While not quite as important a source as the one we have just discussed, it nevertheless contains myriads of good motifs of which designs may be formed. We will divide the group into four divisions; there may be many more, but these four will suffice for our purpose, and they are typical.

The first subdivision comprises artificial objects commonly used in classical times, and carved by the Greeks and Romans. They include, first of all, beautifully shaped and ornamented vases and urns, ewers, narrow-necked pitchers, and similar vessels. These motifs are very common on classical designs and they form an important section of the group. Included here also are flaming torches, Neptune's trident with its three barbed prongs, the bow and quiver, and other weapons. Then there were symbols used by rulers and magistrates, such as the scepter and the fasces. Ancient musical instruments were often represented in carvings, especially the lyre, the harp, and the long trumpet. The chariot was a favorite motif and so was the writing scroll. The torch flame is shown carved for a finial at E in Fig. 2, Chapter IX, and two classical urns are illustrated here in Fig. 4.

The second subclass, which we will call the Renaissance group, consists among other things of coats of armor and coats of mail, halberds, swords, catapults, and other instruments of war; shields with coats of

arms emblazoned upon them, castles, and pennons; also religious symbols such as the seven-branched candelabra.

Many of these elements, such as armor or the knights themselves in battle, are exceedingly good subjects for carving because of the excellent detail which

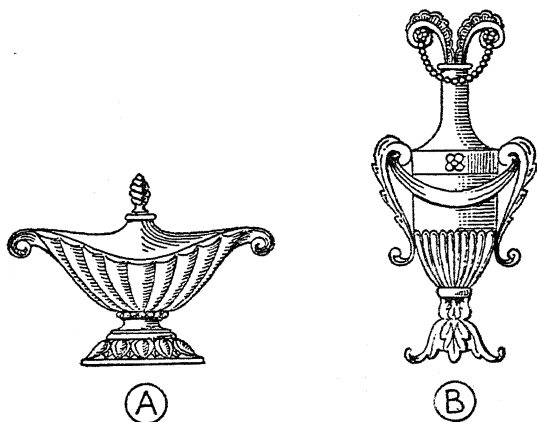


FIG. 4

may be worked into them. We recall a beautiful carving that depicted the storming of a castle. The castle was the center of interest, and on its towers were the defending knights hurling down stones upon their adversaries. In the forefront was the besieging army, with knights in full regalia. Some were mounted and others were on foot. The carving had been done in Germany, and it was a remarkable example of skill, from the great castle with its towers and flying battlements to the finest detail, such as the spears borne by the knights.

The third division we will call the 18th century group. This consists of more modern musical instruments, such as the mandolin, the flute, the violin, etc. It includes books, usually with ornamental bindings; ink pot with quill; sailing ships, cannon, stagecoaches, and other vehicles of travel in fashion at that time; and nautical instruments. This class also comprises woven baskets, filled with such things as fruit and



FIG. 5

flowers; horns of plenty loaded with the crops of the harvest. Figure 5 shows a good example of a basket filled with fruit and flowers, which is typical of the motifs used during the latter part of the 18th century, especially during the time of Louis XVI. The fruit, of course, belongs to the elements taken from the nature group, but the carved basket is characteristic of this particular class.

The fourth division we will term the modern group. It may include any of the present-day articles made by man. The list of suitable objects is long and it would be impossible to name or describe them all. To mention only a few will suffice. The scope of this class encompasses buildings of all kinds, furniture, anchors and chains, steamships, locomotives, automobiles, aircraft, anvils and tools, kitchen utensils, spinning

wheels, and many others. Chapter XIII shows numerous articles that fall in this class.

To make the selection of ornament easier, a chronological classification of the types of ornament as discussed in this chapter follows.

ABSTRACT ORNAMENT

A. Gothic tracery

1. Trefoil, quatrefoil, and other tracery

B. Chip carving

1. Star and figures based upon circles, triangles, or their parts

C. Strapwork

1. Guilloche, interlaced ribbands, etc.

D. Spiral carving

1. Single, double, and multiple spirals

E. Moldings

1. Plain and carved

F. All-over surface patterns

1. Diaper work, imbricated carving, gouged background, etc.

G. Individual geometrically shaped elements

1. Cabochon, cartouche, lozenge, etc.

ORNAMENT DERIVED FROM NATURE

A. Animal origin

1. Human forms, including the mythical
 - a. Bust
 - b. Foot

- c. Hand
 - d. Draped and undraped figure
 - e. Caryatid, faun, mermaid, gnome, elf, etc.
 - f. Negro art and other aboriginal forms
 - 2. Animal forms
 - a. Wild animal
 - b. Domestic animal
 - c. Hoof and cloven foot
 - d. Dragon, Minotaur, and other grotesque figures
 - 3. Birds and other winged creatures
 - a. Eagle, owl, etc.
 - b. Ball-and-claw foot
 - c. Butterfly, moth
 - d. Beetle and other insects
 - 4. Fish
 - a. Dolphin
 - b. Starfish
 - c. Other marine animals
- B. Plant origin
- 1. Trees
 - a. Bark
 - b. Trunk and branch
 - c. Leaf
 - 2. Plants
 - a. Leaf
 - b. Flower
 - c. Vine and tendril
 - 3. Fruit
 - a. Grape, pomegranate, etc.

C. Rock and shell (rococo)

1. Sea shells
 - a. Conch
 - b. Cockle
 - c. Scallop
2. Rock motifs
 - a. Rock
 - b. Rock with dripping sea water

ORNAMENT DERIVED FROM ARTIFICIAL OBJECTS

A. Classical group

1. Vase and urn
2. Trident
3. Musical instruments
 - a. Lyre
 - b. Harp
 - c. Trumpet
4. Implements of battle
 - a. Chariots
 - b. Bow and quiver, etc.
5. Torches, lamps

B. Renaissance group

1. Coat of mail and armor
2. Coat of arms and shield
3. Instruments of war, castles, spears, halberds, etc.
4. Crown, candelabra

C. 18th century group

1. Woven basket, filled with fruit and flowers

2. Musical instruments
 - a. Mandolin
 - b. Violin
 - c. Flute
 - d. Musical score
3. Sailing ship
4. Cannon and other implements of war
5. Stagecoach and other equipages
6. Nautical instruments

D. Modern group

1. Buildings
 - a. Skyscraper
 - b. Lighthouse
 - c. Other buildings
2. Modern furniture
3. Steamship
4. Nautical paraphernalia
5. Tool and machinery
6. Locomotive
7. Automobile
8. Aircraft
9. Household utensil

CHAPTER XIII

WHITTLING

IN THE first chapter we made the statement that the wood-carver's kit might be limited to a pocketknife and the means for sharpening it. We call attention to this statement here as an introduction to the phase of wood carving we are about to discuss.

Whittling is perhaps the oldest form of wood carving. The knife was one of man's first tools—having been used by prehistoric man to kill animals to secure food and skins, and as a weapon for self-preservation. Since the knife figured so importantly in satisfying the requirements of his early existence, it is quite conceivable that it also entered largely into his leisure-time activities. We know this was true in the case of the American Indian, and it must have been so with the earlier races of men.

There are very few boys who cannot amuse themselves for hours at a time with a pocketknife and a piece of wood—and few men either, for that matter. It may be that most of this activity results in nothing more than a pile of chips, but it is possible to turn this wasted energy into a purposeful channel and, with the proper direction, to make things that will be both useful and beautiful.

With just a knife, an endless array of toys, puzzles,

games, or other figures and objects serving more practical purposes in the home can be made. In the hands of a skillful workman, the ordinary pocketknife becomes a tool that will do everything that it is possible to do with a much more costly array of tools. It is a veritable workshop in itself. Intricate pieces of work may be done with it, or simpler things like block puzzles and match-stick carvings of which we will show examples.

First of all, it is necessary to have a good sharp knife. A regular chip-carver's knife is good for whittling provided it has a long skew, sharpened to a keen cutting edge. Most whittlers, however, prefer to use a pocketknife with two or three blades. The knife should be strong, with a large heavy blade for rough cutting and two smaller blades for fine work. It is not wise to buy a cheap knife because it will invariably be made of a low grade steel and be poorly tempered; consequently it will not hold an edge. If a great deal of whittling is going to be done, it may even be desirable to own several knives. For example, one heavily bladed knife may be just right for roughing out a fairly large figure, such as is necessary for the preliminary work on Skipper Sam'l (Fig. 18), while a much smaller knife with very thin blades would be needed to whittle the chain from a match stick shown in Fig. 34.

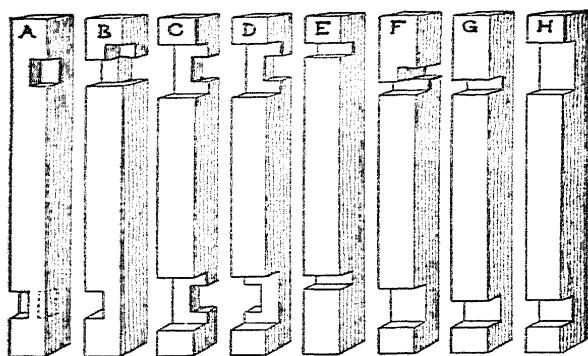
The most suitable types of wood to use for whittling are soft white pine, straight-grained cedar, yellow poplar, or basswood. Use these to begin with. Later on other kinds of wood may be tried to suit an individual

preference. The softwoods mentioned above generally split straight and smooth, and do not crack open ahead of the blade to spoil the work. They also have enough strength in all directions to hold together after large portions of the wood have been whittled away.

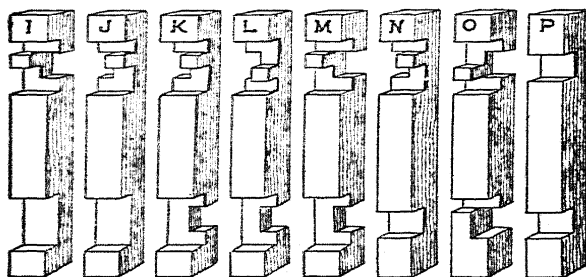
For our first project we will choose a Chinese block puzzle, assembled in such a way that it locks a box which may be used as a child's bank (Fig. 2). This project has been chosen as the first one because it consists of only square pieces of wood which are not difficult to whittle, though considerable care must be exercised for accuracy is essential. The cuts across the grain on this puzzle may be made with a fine-toothed saw, while the cuts with the grain are most easily whittled with a knife.

The puzzle consists of 24 pieces of wood. These interlock, and thus lock, a box which can be opened by the removal of only a few of the members; but with 24 to choose from, it becomes quite a problem for the uninitiated to find the correct combination.

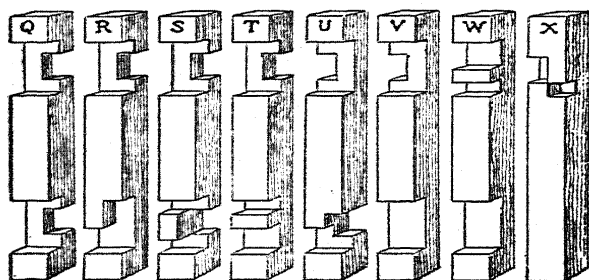
To avoid small fractional parts in stating the dimensions, and for convenience in estimating proportions for a larger box, the rails of the model were made $\frac{1}{2}$ in. square. Practically, it is better to make them slightly larger, even for a child's bank—say $\frac{9}{16}$ in. or even $\frac{5}{8}$ in. The length, width, and depth of the cuts vary in dimensions by quarter fractions of twice the width of the square rails. The distance from the end cuts to the end is usually equal to the width of a rail, but it may be greater or less. It must, however, be uniform in all cases.



(A)



(B)



(C)

FIG. 1

The length, width, and depth of the box, outside measure, will always be the width of a rail greater than the distance between the longest cuts for those respective rails (see A and B in Fig. 1). For instance, in the box illustrated the distance between the longest cuts on the long rails is $3\frac{1}{2}$ in., while on the shorter rails it is 2 in. Hence the box is 4 in. long by $2\frac{1}{2}$ in. square.

The character of the cuts and their dimensions may be easily judged from A, B, and C in Fig. 1. The cut at the lower end of block F in A is $\frac{3}{4}$ in. long. The long rails, eight in number, are $6\frac{1}{2}$ in. long; and the shorter ones are 5 in. long. All of the rails are $\frac{1}{2}$ in. square.

To put the framework together begin with members H, O, F, and T, joining them as shown in C, Fig. 2. Next add W, U, and J in the order named (D, Fig. 2). Unless the joints fit tightly, rail J will not hold its position until the combination of G and L is inserted (D, Fig. 2). This done, rail S can be inserted through the square hole in H and G and pushed back into place. Rail K is fitted to rail F (E, Fig. 2). Next, the combination of Q and E is attached to rail F. Care must be taken that E is not reversed. Rail Q is placed in the notch $1\frac{1}{4}$ in. from the end. Before this combination is inserted into the hole through W and T, rail R must be placed. To do this, rail H is pushed back $\frac{1}{4}$ in. or so, taking with it rail O and permitting S also to be moved back the same distance. The long cut on Q will allow K and E to be pushed upward $\frac{1}{4}$ in. Then rail R can be placed on E and pushed backward into the notch of K.

The position of the rails as they now appear are shown in E of Fig. 2. The combination of K, R, and E is next pushed down and combination H, O, and S

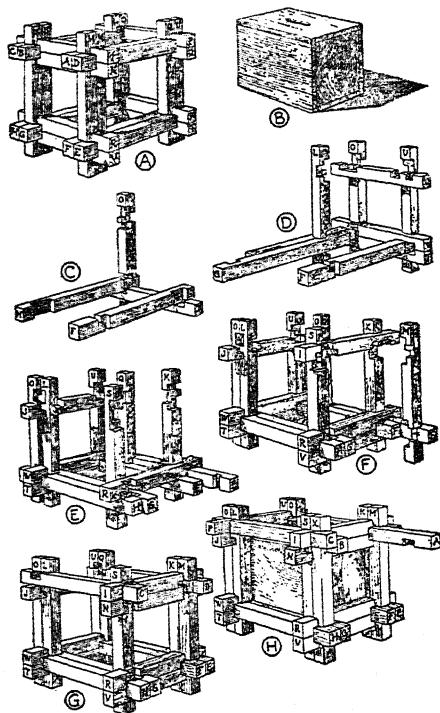


FIG. 2

is pushed back into place. Rail R can be fitted in an easier way if the joints are loosely cut, but it is best to have them fit snugly.

Members V, I, and M are next added in the order named (F, Fig. 2). The combination Q, M, and E then

can be pushed home. The C and D rails are now placed so that a square hole through QU, MK, and LO is left. It may be necessary to make their cuts fit a little loosely to get them into position. The rail C is pushed upward $\frac{1}{4}$ in. as in G, Fig. 2, opening a hole through S and MK, into which rail N can be inserted.

The box (B, Fig. 2) is placed in the framework at this stage. The cover on the box can be hinged, but if this is done the hinges should be placed on the inside. Obviously, there must be no projections around the edges of the box. With a child's small bank the entire box may be taken out if necessary. In this case it will be more confusing to the solver who would open it, to cut the coin slot in the bottom and leave the loose cover plain so that the movable rails will be at the bottom of the frame where they are less likely to be found.

To lock the box in the framework, rail C is pushed down into place and P, with its $\frac{1}{2}$ -in. cuts downward, is inserted through QU and LO until one of the cuts coincides with the LO-end cut in J. Then B, with its $\frac{1}{2}$ -in. cut upward, is inserted with this end first into the holes through IN and JP. When the cut at the XS-end coincides with that in C, the rail X is inserted with its $\frac{1}{2}$ in. x $\frac{1}{4}$ -in. cut facing outward and to the right at the top. When this cut coincides with B, the latter can be pushed into place. Rail P is drawn through until its $\frac{1}{2}$ -in. cut at the QU-end coincides with the cut in J. Then C is pushed upward $\frac{1}{4}$ in. so as to allow N to be drawn out $\frac{1}{4}$ in. This permits A to be inserted with its $\frac{1}{2}$ in. x $\frac{1}{4}$ -in. cuts to the left,

or facing B. When these cuts coincide with P and N, N is pushed back, C is pushed down, and P is pushed into place. The bank is now ready for the puzzle enthusiast.

It will be found that only two rails are movable, X and P, and these can only be moved $\frac{1}{4}$ in. Rail X may be drawn upward this distance. This feature is introduced merely to hoodwink the solver. Usually, finding X movable, he will draw it up, thus locking all of the key rails, for they cannot be removed with X out of place, even when P and C are in their proper positions. This may suggest to the reader other means of introducing features that will be misleading to the uninitiated.

To open the bank, P is pulled out $\frac{1}{4}$ in. If a cut about $\frac{1}{16}$ in. deep is made on A, as indicated by the dotted line in A, Fig. 1, it will allow P to be pulled out too far. Nearly everyone will pull a rail out as far as it will go. In this case it would relock the key rail A, which is to be removed later, and cause confusion.

When P is out $\frac{1}{4}$ in., C is pushed up and N drawn out $\frac{1}{4}$ in. Member N cannot be drawn out farther even if a $\frac{1}{16}$ -in. cut as that mentioned is made on A, as it would require the deepening of other cuts. Rail A is now released. H in Fig. 2 shows A partly drawn out at this stage. The bank cannot be opened yet until member B is removed. To accomplish this, N is pushed back, C is pushed down, and P is pushed through until its $\frac{1}{2}$ -in. cut corresponds with B. It could be removed, but it is not necessary. Rail B can now be drawn out $\frac{1}{4}$ in. This releases X, which is

removed. B is now withdrawn and the box or cover taken out of the frame. The bank is closed by a reverse process.

The miniature igloo shown in Fig. 3 is an ideal whittling job for the beginner. It makes a novel desk ornament as it houses a paste pot, while the paddle on the kayak serves as a letter opener.

The base of the miniature igloo is a piece of $\frac{1}{2}$ -in. plywood with a shallow depression bored into it to hold the paste pot. This is painted blue to represent the ocean. The ice cake and iceberg are made of $\frac{1}{4}$ -in. plywood, sawed to shape, and nailed together with the lower edge of the berg resting on top of the ice cake. This assembly is hinged to the back of the base, the hinges being set into the lower side of the ice cake before nailing the two parts together. Also cut a hole 4 in. in diameter, over which to mount the igloo. The hinged arrangement allows the paste pot to be removed.

Turn the igloo from a block of wood. Turn the outside first, leaving a small flat place on its top so that it may be turned around and fastened to the faceplate to hollow it out on the inside. Carve the entrance piece, fitting it against the main section of the shelter. Saw out a smoke hole in the roof, slice off the rear part to butt against the iceberg, and assemble the parts on the ice cake. Then, to remove the machinelike regularity of the turning, whittle the outside of the igloo, cutting in suggestions of joints between the snow blocks. Whittle snow mounds and glue these to the top of the ice cake, mainly around the igloo and to the

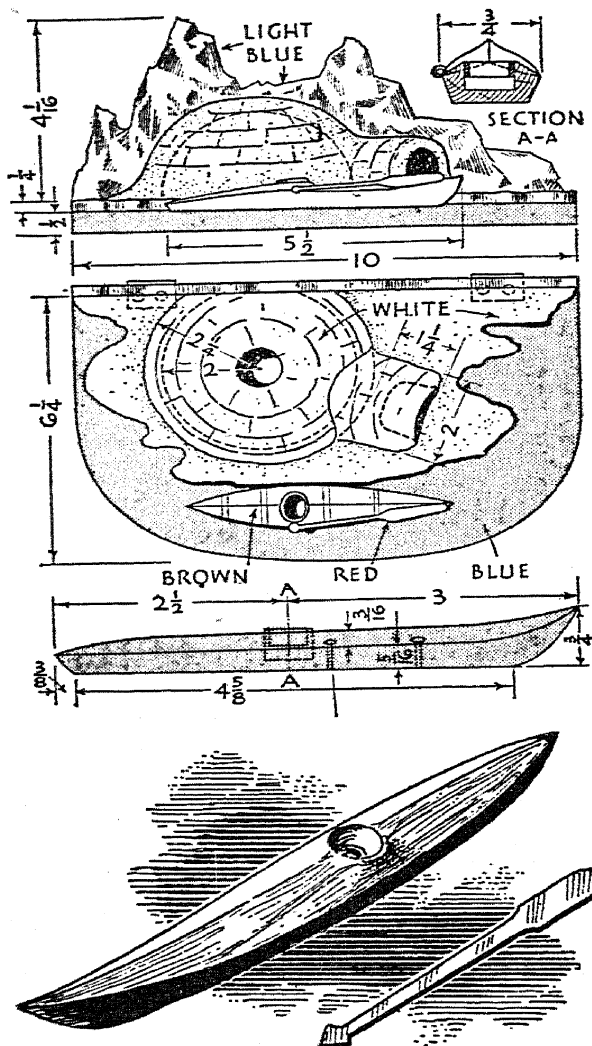


FIG. 3

side of the iceberg to produce the natural irregularity of the scene. Some may prefer to make the iceberg and the ice cake out of fairly thick pieces of pine and whittle them to shape instead of gluing separate pieces to the plywood.

Carve the kayak from a pine blank $\frac{3}{4}$ in. x $\frac{3}{4}$ in. x $5\frac{1}{2}$ in. Drive two brads near one side of the kayak to hold the paddle, and nail the boat to the base. The paddle is carved from wood, with the handle tipped like an arrowhead for opening letters. The paddle end becomes the handgrip.

Paint the iceberg light blue with patches of light and dark lavender. The ice cake and igloo are white. Raw sienna is used to paint the kayak and there are brown straps across the top. The paddle is red.

Our next project is whittled from a hard piece of wood, such as walnut or pear wood. It is a paper knife with a curiously interlaced handle (Fig. 4). It will make a useful gift or souvenir.

The stock is $\frac{5}{8}$ in. x $1\frac{1}{2}$ in. x 8 in. Draw the design (A) on a piece of paper and cut it out with knife or scissors. Lay this pattern on one side of the wood and run a soft pencil around the outline. Save the pattern; you will need it for the other side. Draw the handle details on the reverse side of the block, being sure that it follows closely the plan shown at B. Remember that the parts interlace, and where one section crosses over on one side, it must cross under on the opposite side.

The work is next outlined with knife or saw as at C, the parts marked "X" being cut right through as shown at D. Keep the work progressing evenly on both

sides until it appears as in the edge view at E. When the ribbon parts have been reduced to a uniform thickness, round them off by whittling away the sharp corners. Do not try to take off all the wood at once; work

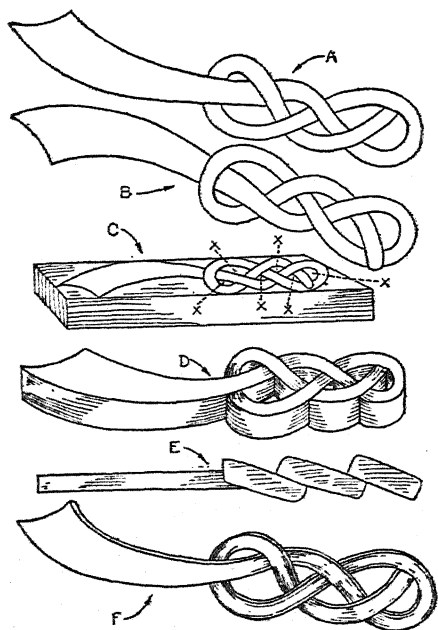


FIG. 4

around and around, keeping the outlines smooth as you go. Bevel the blade to a thin edge as at F and then sand smooth. If desired, the knife may be waxed and polished.

The next job is somewhat similar to the one described above, but slightly more difficult. It consists

of three interlocked rings, carved from a single block of wood (Fig. 5). Use apple, pear wood, or a piece of walnut, 2 in. x 2 in. x 3 in. Mark the stock on both

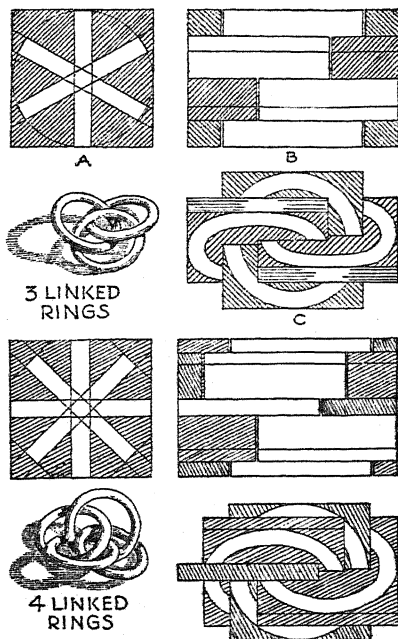
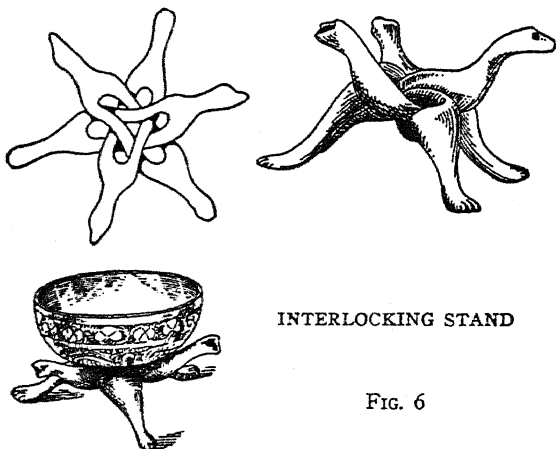


FIG. 5

ends as shown at A, and cut away all the shaded parts. Now mark it as at B and again cut away the shaded parts, leaving a figure like the one shown at C, as if three thin rectangular pieces were set at an angle so that they project halfway through each other.

Cut out of cardboard or thin sheet metal a template

for marking the three circles. With a sharp knife, carve away the corners outside the circles. Next cut away the inside of the rings, but be careful not to cut into the rings. Look as often at the back of the work as at the front. When the rings have been cut free from



INTERLOCKING STAND

FIG. 6

each other, round them nicely and smooth them with sandpaper. Stain and shellac them, if desired.

The next project is also composed of interlocking figures (Fig. 6) and is still more difficult than the interlocked rings, though similar to it in some respects. Whittling a tripod in one piece, usually in the form of dogs but occasionally like intertwined snakes, is an old trick of Oriental or West Indian origin. Some of these pieces have come from Jamaica or other parts of the West Indies. Others are from Eastern countries and are used to support crystal balls and incense burners.

A hard, tough wood should be chosen because most of these pieces, when finished, are pressed into service to support trays or other ornaments and must bear weight. The very nature of the design places the weight across the grain, and there is considerable strain

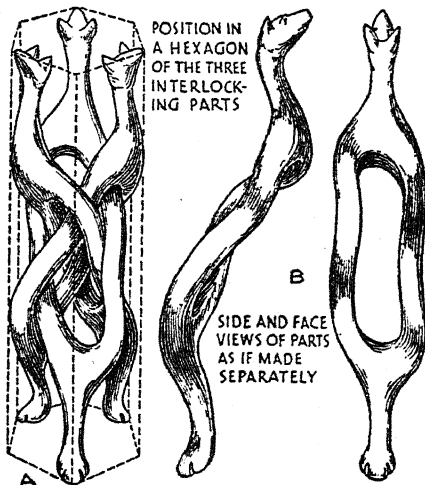


FIG. 7

at the ends of the rude link forming the animal's body.

While the piece, both when finished and in the drawing, looks exceedingly intricate, it has a regular design and will be found easy by the whittler who has made the interlocked rings and similar articles.

The block from which the tripod is to be whittled is cut to a rough hexagon as shown at A in Fig. 7. This figure also shows the arrangement of the dogs' heads and feet while still in the solid block. The heads take up each alternate corner at one end of the block, and

the feet occupy the corners farthest away at the other end, with the bodies passing diagonally between.

It is easiest to begin by whittling the heads and necks rudely to shape at one end and the legs at the other, remembering all the time that the corner at a dog's nose at one end will be blank at the other end of the block. When the legs and the heads have been roughed out, the center section may be cut round and the lines of the bodies roughly cut in.

Then begin to work from one head toward the diagonally opposite foot, roughing out the two sides of the body carefully so that too much stock is not cut away, for if that should happen, one of the other bodies will be too weak to support its share of the load. When one body has been roughed out, continue from point to point all around the block.

This progressive whittling is continued until all outlines are smoothed to shape. Probably the wafer blade of a penknife will be required to separate the bodies. When they are separated, they are smoothed and thinned only enough to allow them to be spread open as shown in the illustrations. The heads and feet are completed, and the whole piece prepared for finishing by sandpapering.

Most whittlers sooner or later wish to carve a chain. The one shown in Fig. 8 is an endless chain which may be carved from a single block of wood. Get a straight-grained block of wood $1\frac{1}{2}$ in. x $3\frac{1}{8}$ in. x 10 in. Mark both ends as shown and whittle away the shaded parts. Mark off the rings X, eight of which are $1\frac{1}{2}$ in. in

diameter, and one $\frac{7}{8}$ in. in diameter. All are to be $\frac{1}{4}$ in. thick. Cut down between the rings with a coping saw and whittle out the wood in between as shown in the edge view. You will now have what amounts to a

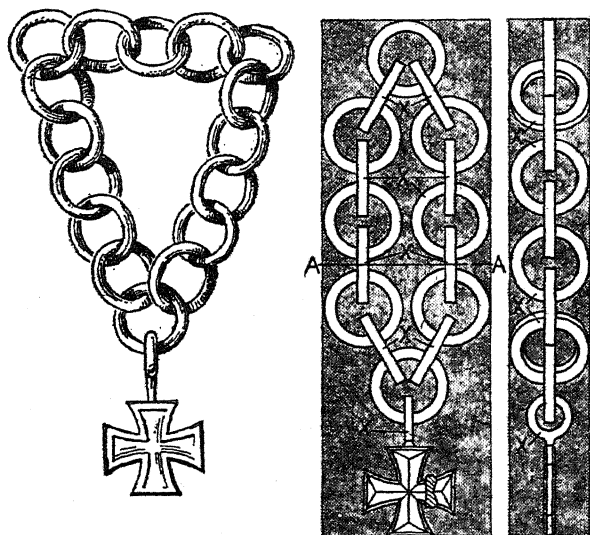


FIG. 8

board $\frac{1}{4}$ in. thick with nine half-round disks projecting on both sides.

Next mark off the other eight rings, which are all $1\frac{1}{2}$ in. in diameter. This you can do with a pair of dividers. Don't cut away all of the wood outside the rings at one time—only sufficient to allow you to cut loose one ring at a time; otherwise the wood is liable to break. The last part to be cut out should be the cross, because this section is handy for clamping in

the vise while you are finishing the rings. After all rings are cut loose from one another, round them neatly and smooth with sandpaper. The cross may be carved as shown. It is $\frac{3}{16}$ in. x $1\frac{3}{4}$ in. x $1\frac{3}{4}$ in. Any type of suitable ornament, of course, may be substituted in its place.

The next few projects we are about to describe introduce a new feature—objects which have movable joints. These joints must fit quite snugly and being made of a single piece of wood, they offer good tests of skill and patience.

The first of these projects is a pocketknife. It is common enough to whittle with a pocketknife, but to turn around and whittle a pocketknife with a pocketknife is a bit of a paradox. It can be done, however, and the knife, although cut from a single piece of wood, can have blades that open and close just like a real one. The idea is simple enough. What is required is a sharp knife and a steady hand. The trick lies in making the knife with its blades open and closing them afterwards.

Make a copy of your own pet pocketknife, or of the one shown in Fig. 9. If you make the one illustrated here, lay out on a $\frac{3}{16}$ -in. piece of very straight-grained white pine or basswood, measuring $\frac{3}{4}$ in. x $6\frac{1}{2}$ in., a checkerboard of $\frac{1}{4}$ -in. squares similar to A. Copy the outline and saw or whittle out the blank (B). Thin down the blades until an end looks like C.

Next cut out the inside of the handle, first outlining all around as in D, then splitting out little wedges of

wood. As you get deep into the handle, you will have to cut diagonally at the butt of each wooden blade as shown at E. A series of crisscross cuts at the bottom of the hollow will help you to "chew" out the wood down to the required level of $\frac{1}{16}$ in. from the back, as in

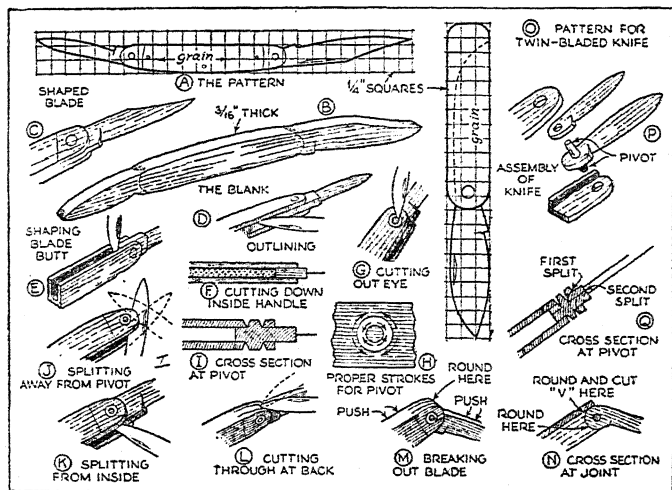


FIG. 9

F. Gauge the depth constantly as you work by measuring with the tip of your knife blade.

Now comes the part requiring care—rounding the blade pivots and releasing the blades. Begin as in G by cutting around the pivot with the knife tip, cutting out a little V all around the pivot as shown in I. Work very slowly and carefully, cutting always with the grain as in H because the wood of the pivot is across the grain, and hence fairly weak. Cut down until the

pin stands out free to a depth of slightly over $\frac{1}{16}$ in. (the thickness of one side of the handle). Cut a V out around the pivot on the other side in exactly the same manner, making very sure that the two sides of the pivot are exactly in line, just as they would be if a hole were drilled straight through and a dowel rod inserted.

This done, lay your knife blade along the butt of the wooden blade and gradually work it in toward the pivot from all sides, using a rocking motion. Work in just to the pin, as in J, until you see the edge of the blade at the base of the V around the pivot at all points. Work from the inside as in K. This frees the blade and pivot except for the joint at the back.

If you will examine your own knife, you'll see that there is a little leaf spring which forms the back of the knife and also holds the blade tightly in the half open or fully open position. You can simulate this spring, and its effect, by cutting along the back a little as in L. Now work the tip of your knife blade in along the back of the wooden blade, rocking it slightly to cut the full width of the "spring" section until you can see the tip of the blade inside the wooden-knife handle. Cutting and rounding out at the heel of the butt may help you get through more quickly, as indicated in N, at the top. This part of the work may go more easily and with less risk of splitting if you first soak the piece thoroughly in water.

Try the wooden blade very cautiously to see if it is free. If not, you may be able to cut away a little wood here and there to loosen it. Take hold of the wooden-

knife handle in your left hand and the blade in the tips of your right-hand fingers, just as you would to close a real knife, and slowly, carefully, start to close the blade, meanwhile keeping a steady pressure *toward* the pivot, as in M. Your heart may jump into your mouth when the blade comes free, because there is almost always a little tongue of wood uncut somewhere around the blade, but if you have been careful, the blade will come free without snapping the pivots. A little rounding up, as indicated in N, and smoothing at the sides of the blade butt will help the action. Then cut in the thumb-nail notch, smooth it, and that end of the knife, at least, is finished. Make the other end in exactly the same way.

The next step is to try to close the blades into the handle. If they are too thick, thin them a little, or if the butts bind, shave them off. The blades can be made to close just as readily as a real one. Round and smooth the handle, put on the markings, and your wooden knife is finished.

It is also possible to make two blades on one pivot—in fact, one of the illustrations shows a knife made that way. (See Fig. 10.) The assembly sketch P in Fig. 9 shows what such a knife would look like if taken apart, and the cross section Q indicates how the pivot fits through the second or smaller blade. In principle, this joint is exactly like the other ones, except that the pivot is made longer on one side to go through the second blade as well as the side of the handle.

A simple pattern for a knife of this type is given in O. You will need a piece of wood $\frac{1}{2}$ in. x $\frac{3}{4}$ in. x $5\frac{1}{2}$ in.

Work just as you did in making the smaller knife, but make the blade blank much thicker ($\frac{5}{16}$ or $\frac{3}{8}$ in.) and do not shape the blade before you free the pivot.

Cut in around the pivot as before and free the blade butt; then go to work around the pivot, cutting in the V still deeper on one side, as in Q, until the pivot is

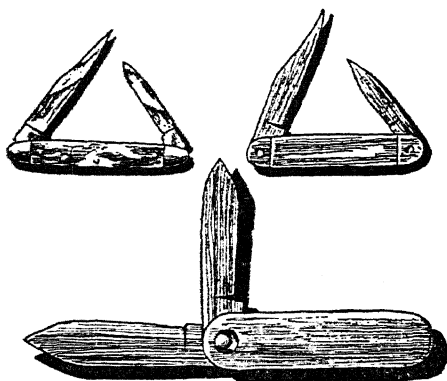


FIG. 10

free deeply enough in the blade butt to permit the second blade to be split free. Now, unless the grain in the blade is unusually straight, you had better saw down from the tip of the blade to the butt about a full $\frac{1}{16}$ in. in from the side where the pivot has been cut in deeply. Then split through the blade butt with your knife and shape up the smaller blade. (It is best to make the one blade smaller than the other to simulate a real knife.)

Whittling ornate fans from a single block of wood is a favorite stunt. It looks difficult but is really a com-

paratively simple matter. And few whittlers realize that the same method to be used here can be adapted in ways they have never before tried and with which miraculous-looking feats can be accomplished, such as carving the figure of a woman in a billowing skirt or making a bird with outspread wings and tail in a cage—all from one piece of wood.

The first requirement for any type of fan is a piece of fairly soft straight-grained wood such as white pine or basswood. Thickness does not particularly matter, except that it does, of course, affect the blade width and consequently the width of the entire fan. Any width between $\frac{1}{4}$ in. and $\frac{3}{4}$ in. will do. In the drawings A, B, C, and D of Fig. 11 are illustrated the fundamental steps in making a simple fan. A block such as A is notched as at B to provide a thin part upon which the individual blades can be pivoted. The blades are produced later by splitting the piece and spreading the sections apart. Some sort of end design, such as that on the block at B or the more complicated design at E, should be put on the end of the blades before they are split apart. All sorts of elaborate shapes may be cut, and holes may be drilled through to form a tracery or scrollwork.

When the finished blade shape has been produced, the block is soaked in water for from 12 to 24 hours. It is then removed and the leaves or blades are split apart as at B, care being taken that no section of the split goes beyond the bottom of the double notch. This is where the grain in the piece plays such an important part—it must run straight.

As soon as the blades are split and while the block is still very wet, it is grasped by the butt or base and by the tops of the blades so that the blades are held tightly together. The butt is then twisted one quarter

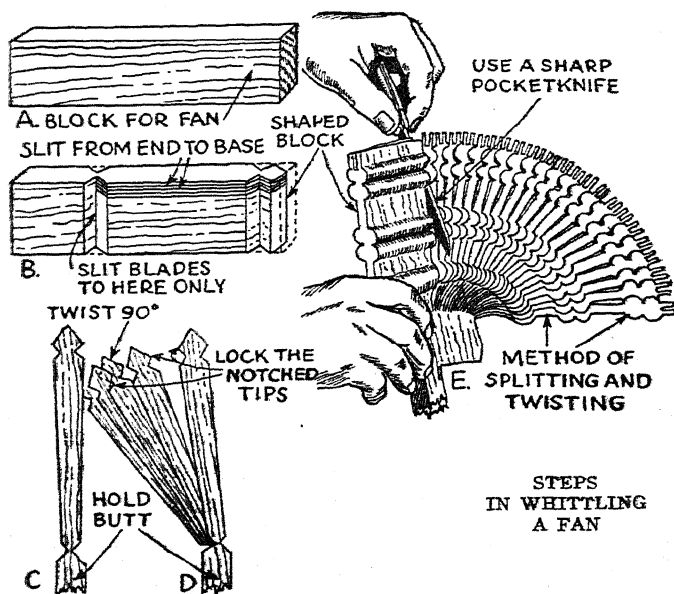


FIG. II

turn. This begins the separation of the leaves, as at C, and they can then be spread individually as at D. At their tips the blades may be locked or interlocked as shown, or they may be held separated by passing a doubled cord under and over and knotting it between each blade.

The first step in giving this type of carving wider

application is to make a bird or a flying fish with wings and tail formed as fans. The tails and wings will be in reality the same fan, the division being attained by bending the blades alternately in each direction instead of forming them as a single spread. This requires a

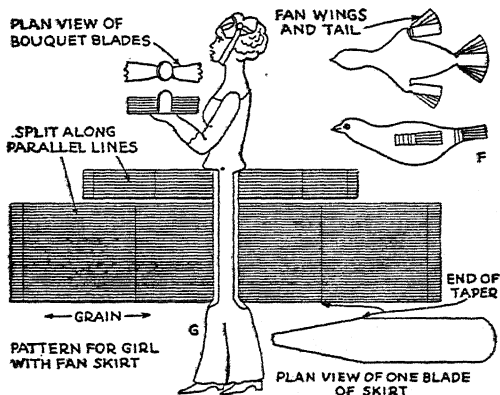


FIG. 11 (continued)

well-soaked piece of wood and careful splitting to the notch.

The little lady of 1860 or thereabouts, complete as to skirt, overskirt, flounces, tip-tilted hat, and bouquet illustrated in Fig. 11 (cont.), is likewise of one piece of wood. If desired, she may be colored with oils. Details of her construction are shown in the drawings at G in Fig. 11. The important thing to remember is that fragile or unsupported sections should not be completed until all rough cutting has been done. Thus the bouquet in the lady's hand should be whittled out just

before the blades are split. Since the grain of the wood runs across her body, great care must be exercised that her head or arm is not broken off.

It is essential that the notches for the skirt fans be brought as close together as possible in order that they may present an unbroken skirt line at each side. It must be remembered, however, that bringing them too closely together will cause the stem to break off when the blades are split, or possibly may cause the stem to split across as the leaves or blades are separated. The fanlike skirt also differs from the previous fans in that the blades, when brought to place and strung together, are bent downward and pulled in to form a skirt. This must be done carefully while the piece is very wet.

Similar projects might include a Christmas tree, a floor lamp, an umbrella, an Indian chief and his head-dress, a ballet dancer, a Hawaiian belle, and so on. Another fan project that offers considerable amusement is the fan in a bottle shown in Fig. 12. This is produced by taking a piece of wood small enough to enter the bottle neck, forming the fan completely, stringing it, then folding it just as a woman's fan is folded, and inserting it through the neck into the bottle. It is reopened with long wires and held until it dries. The second little fan below the main one is just an added complication.

If more complicated applications of fan whittling are desired, Fig. 13 provides an idea—a bird with fan wings and a tail in a cage. This is an unusual adaptation of the ball-in-a-cage stunt. The method of form-

ing the fans is shown in the drawing at E in Fig. 11. Bird, wings, tail, and cage are, of course, all whittled from the same piece.

For the next project we have chosen the figures of

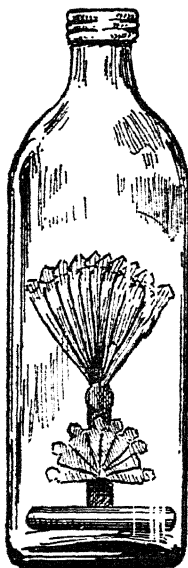


FIG. 12

six exceedingly interesting rascals whom we are quite sure everyone will love. Meet Mac, Sandy, Rob, Tam, Jock, and Lad, a double threesome of the bonniest Scotties that ever romped the heather (Fig. 14). They're braw little fellows—every one, and so, lads and lassies, here's how to whittle them in miniature from wood. It'll be easier than you think because they are all variations of one simple pose.

All you will need is a piece of softwood, planed on both sides so that its actual thickness is about $\frac{3}{4}$ in. Mac takes a block of this, 2 in. x $2\frac{1}{8}$ in.; Rob, 2 in. x $2\frac{1}{4}$ in.; Sandy, 2 in. x $2\frac{1}{2}$ in.; Tam, Jock, and Lad,

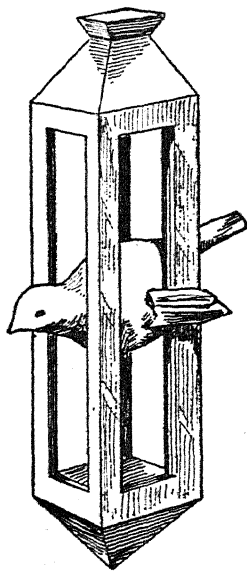


FIG. 13

2 in. x $2\frac{1}{8}$ in. each. Select blocks that are straight grained and without knots, and on one flat face draw $\frac{1}{4}$ -in. squares. On these checkerboards, lay out patterns as given in the drawings. We prefer to let the grain run lengthwise from nose to tail, but beginners may find it easier to run the grain the other way since in this way the tips of the ears are less likely to break.

With either knife or scroll saw, cut away the block along the lines of the pattern. Stop and study the illustrations in Figs. 15 and 16, then begin to round off

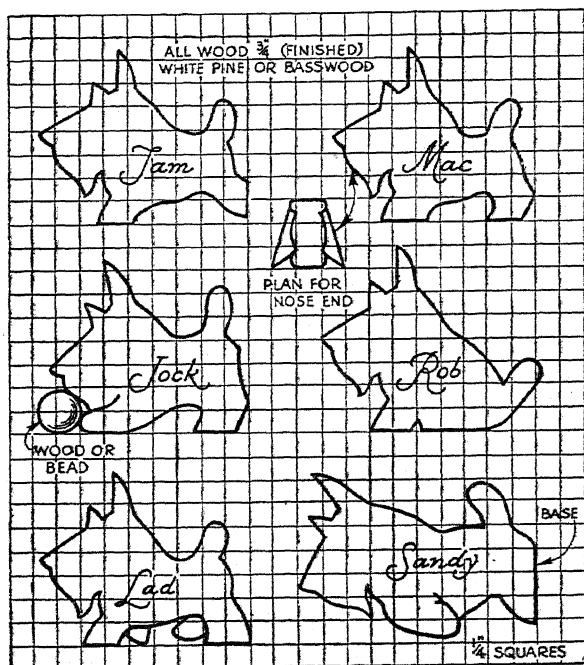


FIG. 14

roughly the sharp lines of the back, belly, and legs; and thin and round the tail. Separate the ears and round them in back (see B in Fig. 16), and cut along the line of the lower jaw and up the front of the leg to take out a V and thus form the neck.

Now you are ready to carve the face by the steps

shown in Fig. 15. Study the sketch marked B, then cut in the forehead and take off the beveled strip of wood on each side of the head to form the upper part of the nose, and remove the wedge of wood between eyebrow and ear. To form the prominent lower lips and chin whiskers which Mac sports, hollow out the lower jaw as at C, Fig. 15. This figure also shows the formation of the nostrils by a cut straight in from the sides and a long bevel up from the bottom of the chin. Next hollow out the ears slightly; then hollow from the inside of each lip and whiskers toward the front of Mac's nose, as you can see at B and D, Fig. 15.

The pup will now look quite a bit like the Scotties you see running around town, but a few careful knife cuts are needed to take out the V's of wood that give Mac his rough coat and whiskers. Study A in Fig. 16 for the position of these cuts. Three sprout on each side from the base of the tail, three run parallel below the base of the ears, and a couple just ahead of the hind leg and just back of the foreleg accentuate the curve of Mac's belly.

A couple of V's, one cut along the front line of the foreleg and the other along the bottom line of the chin, will help define the throat; and a series of parallel V's along Mac's lower jaw give him his whiskers. Now put a V or two toward the center of Mac's side, as indicated, and a notch or two where his toes are hidden by hair, and he's about ready. These V's all help to do one thing—to break up any remaining plane surfaces and to give the pup's coat a shaggy appearance.

Mac's eyes are set just below the ridge of his nose. You can simulate them by cutting in small but deep

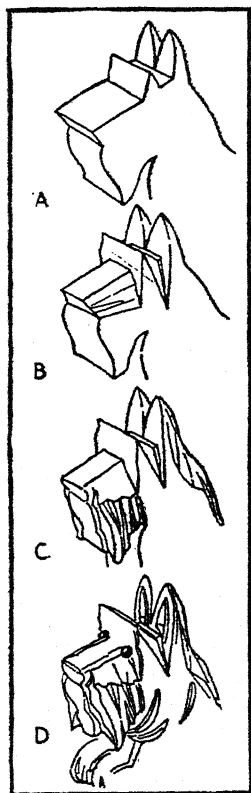
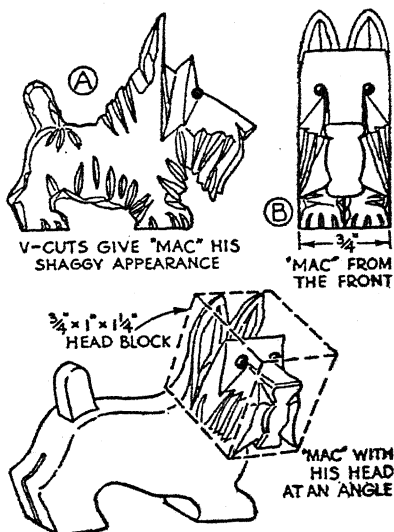


FIG. 15



MINIATURE SCOTTIES

FIG. 16

pyramidal notches, but we've found it better to use the little shiny black roundheaded pins women use with veils or corsages (you can get the pins at the ten-cent

store or use a black bead with a pin through it). The pin end is cut off up to within about $\frac{1}{4}$ in. of the head, then pushed into a hole drilled for it. This gives Mac's eyes the necessary sparkle.

You will probably want to paint Mac black—he'll look more realistic that way. India ink or black water color is suitable because it gives a very dull finish.

Mac's clansmen are made just as he is. The same head design is used in each case, but is placed in a little different position. You can originate a dozen or two more poses simply by studying your own dog. If you want Mac's head cocked on one side, use a thicker block. Mark out on it Mac's body, cut that out, then form a $\frac{3}{4}$ in. x 1 in. x $1\frac{1}{4}$ -in. block on the neck with the long dimension in the direction in which you want Mac's nose to point. On the side of this block, draw the checkerboard, and Mac's head as in the lower sketch of Fig. 16. Whittle him out and there you are!

The ball that Jock is playing with can be cut out of the same block or can be a small bead glued in place. You will have to watch Lad's legs so that you get the correct stepping motion. Hollow his right feet to half depth. Tam will probably have to be glued to some sort of base to keep his hind legs in the air, unless you drill and weight his forelegs. Sandy has been drawn in Fig. 14 in a horizontal position so that the grain goes in the proper direction; you will use him, of course, in the upright pose when finished.

These little Scotties have dozens of uses besides just decorating the mantel, coffee table, or dresser. You can use them to top cigarette boxes, on ash traps, to deco-

rate inkstands, book ends, picture frames, and so on. If the size isn't exactly right, simply take a block of the size you want to use and lay out on it a checkerboard with as many squares as required by the particular pattern you plan to use. If each square is $\frac{1}{2}$ in. in size, your dog will be twice as big; if $\frac{1}{8}$ in., half as big. You can also make the Scotties in mahogany or walnut for special jobs.

Before we start whittling a human figure, it may be well to insert here the carving of a man's hand—conventionalized to form a novel door knocker (Fig. 17). This decorative knocker is whittled in the shape of a simplified fist. All that is required is a piece of wood $1\frac{1}{2}$ in. x 3 in. x $4\frac{1}{2}$ in., a 1-in. butt hinge, screws, and a pair of the small hardened-steel caps or glides that are used on chair feet.

The block is laid out in $\frac{1}{2}$ -in. squares on one wide face as shown in the drawing, and the pattern of the hand is traced by copying square for square from the drawing. The hand shape is then sawed out. The back face is whittled on a taper from both ends toward the wrist, so that the wrist is $\frac{1}{4}$ in. above the back surface, as indicated in the side view pictured in Fig. 17.

The fist is formed by tapering from the knuckle line to the middle joints of the fingers until the lower edge is only $\frac{1}{2}$ in. thick, and from the knuckle line back toward the wrist until wrist thickness is only $\frac{3}{4}$ in. The thumb is formed by cutting straight across at the edge of the index finger, leaving the thumb extending out to the right and only $\frac{1}{2}$ in. thick. The sides of the wrist are then chamfered as indicated, and

equally spaced notches cut in to indicate the fingers. The wood may be stained, may be left natural and finished with linseed oil, or may be painted.

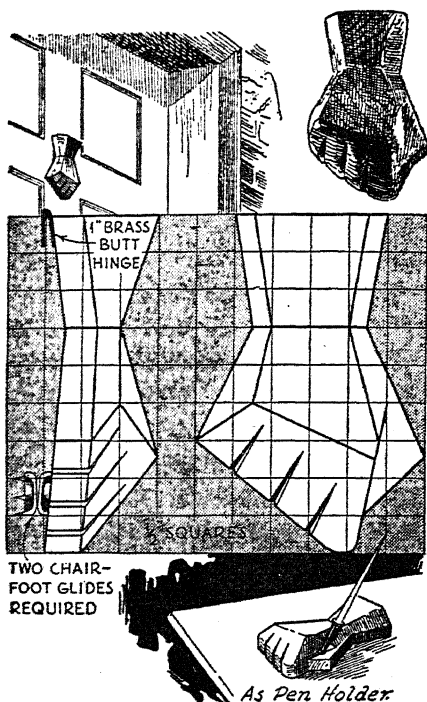


FIG. 17

The butt hinge is put at the top of the cuff, and the glide is fastened at about the center of the back face of the hand. Screw the hand to the door; then put the other glide on the door so that the two glides strike together when the hand is raised and dropped.

A similar design may be used as a holder for a desk pen. In this case the socket for the pen is inserted in a hole drilled at an angle between the thumb and forefinger, as indicated in the sketch. The underside of the



FIG. 18

hand, instead of being hollowed slightly, is left flat and covered with felt.

As we stated once before, in Chapter XI, the human figure is the most interesting subject one can choose to carve. The same is, of course, true of whittling. So let us introduce Skipper Sam'l, white-haired, square-jawed old sea captain (Fig. 18) who once trod the deck of a speedy clipper fighting her way 'round the

Horn to China. You can bet that one of the gnarled hands thrust deep into the pockets of his weather-beaten old pea-jacket is fondling his jackknife, universal tool of sailors. It's only right, then, that he

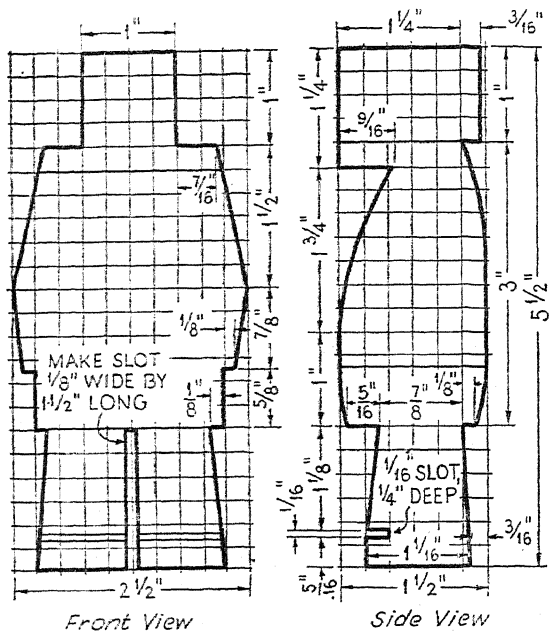


FIG. 19

be immortalized in wood with his own favored tool—the knife.

For the figure you will require a bit of straight-grained wood, $1\frac{1}{2}$ in. x $2\frac{1}{2}$ in. x $5\frac{1}{2}$ in. First, lay out $\frac{1}{4}$ -in. squares on the front and right-hand side of the block. On this checkerboard, lay out the front and side outlines of Fig. 19. Now saw in all the horizontal lines

from the sides—tops of shoulders, bottoms of cuffs, and bottom of coat. From front and back, saw in under the skipper's chin and at the back of his neck, at the front and back of his coat, and the slot that divides his shoes from his trousers; this slot goes in $\frac{1}{2}$ in. from the front face of the block. Next saw the

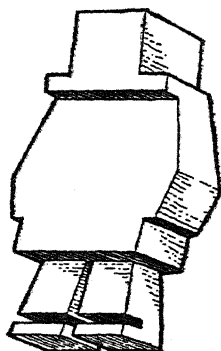


FIG. 20

$\frac{1}{8}$ -in. slot between the legs to the bottom of his coat, and saw off $\frac{1}{4}$ in. of wood back of his trousers.

The cuts you have made so far haven't destroyed any outlines of the blank, but from now on every cut will remove part of the pattern. Saw away the waste wood at the sides of the head and outside the arms down to the elbows. Now saw up the outside of each leg *almost* to the bottom of Sam'l's coat (that is, within about $\frac{1}{4}$ in.). Then stop and saw up the fronts of his trouser legs until you meet the saw cut which marks the bottom of his coat. Finish the side cuts, and both legs are free.

Trim the sides of the coat to the cuffs, and *down*

(to avoid the risk of splitting) from his elbows to his cuffs. Cut away a little at the bottom of the coat as is indicated in the side view of Fig. 19. Now all that remains to be done is to slope Sam'l's chest. Measure

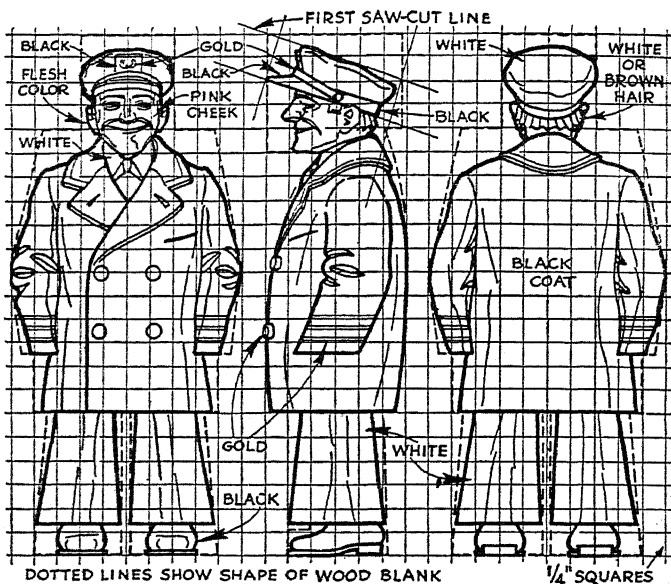


FIG. 21

down $1\frac{3}{4}$ in. from the point of the chin, and from a horizontal line at this level sketch a liberal curve up each side to the inside end of the saw cut marking the chin. Cut away the wood outside this line with knife or saw, and your finished blank should look like Fig. 20.

You will see from Fig. 21 that we will need a few more patterns. These patterns or templates are shown

in Fig. 22. Lay them out on thin cardboard and cut them accurately with scissors. Then take back template A, line it up at bottom and sides with the skipper's coat, and mark along the sides as shown in one of the lower sketches of Fig. 22. This gives you

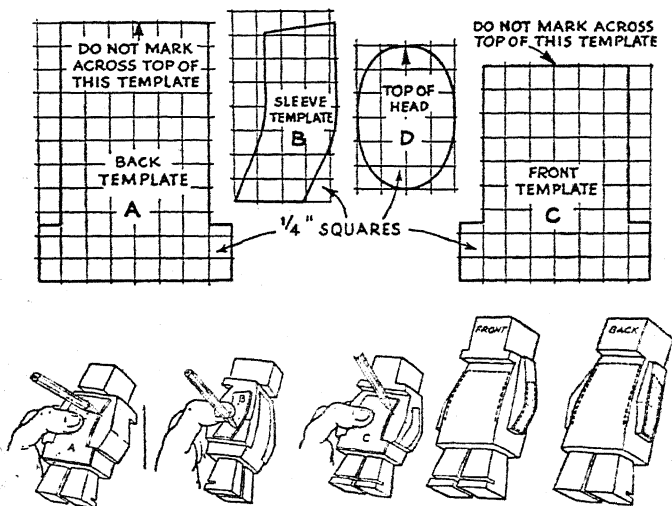


FIG. 22

the line joining his arms and body. Place and trace the sleeve template B on each arm in turn, lining up the bottom with the bottom of the cuff and setting the back edge (or the elbow) in about $\frac{1}{8}$ in. from the back of the block, as shown. Next align template C on the front of the block and draw up each side to mark the line between arms and body.

Now sharpen your knife point and score deeply along the template lines you have just drawn. Keep

forcing the knife point down and cutting away the little outer sections of wood until your block looks like the two right-hand views in Fig. 22. This leaves the arms roughly shaped and standing out from the body.

Let's start now on the shoes and trousers. Study

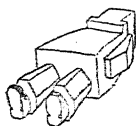


FIG. 23

Fig. 23 carefully first. Fig. 21 will show you how the shoes look. Nick out the heels and round them in back. Round the blunt toe and slope the instep of each shoe. Cut out a sliver of wood all around each shoe to show the joint of sole and upper. Then take off the rough

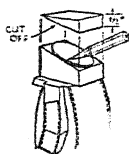


FIG. 24

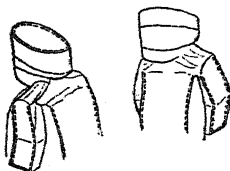


FIG. 25

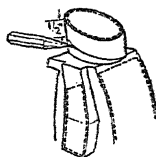


FIG. 26

corners on each trouser leg, making a rough octagonal section tapering from the shoes toward the coat bottom. Cut *from* the shoes *toward* the coat to avoid splitting.

Next measure down $\frac{1}{2}$ in. from the top in back of the block which is to become the skipper's head. Draw a horizontal line across the back of the block, and diagonal lines on each side to the top of the block at

the front, as in Fig. 24. Cut this upper section off. Put oval template D in place and pencil around it. Split off the outer corners to round the head as in Fig. 26. Shape the shoulders roughly as in Fig. 25. Draw a line all around the head oval $\frac{1}{2}$ in. down from the top, as

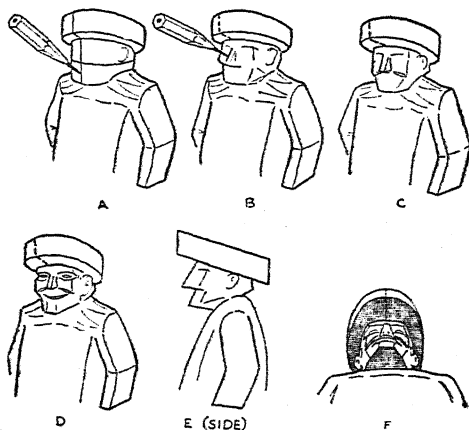


FIG. 27

in Fig. 26. This line marks the joining of cap and face, so with the knife or small saw cut in about $\frac{1}{8}$ in. deep around it; split off the wood from below so that the block looks like A in Fig. 27.

Your first step in whittling the face is to locate the nose. Draw a vertical line squarely down the front from the peak of the cap to the point of the chin. Measure down $\frac{3}{8}$ in. from the joining of face and cap, and score $\frac{3}{16}$ in. deep straight across the face on this line. This marks the tip of the nose. Now cut diagonally in from the point of the chin to the bottom of the

scoring cut. Cut away the wood diagonally at the same angle from the tip of the nose to the joint between face and cap. The face will now look like E in Fig. 27, with proper chin and nose slants.

Study F in Fig. 27 closely to fix the angles of chin, cheeks, and eyes before you make any more cuts. Mark a triangle for the nose as in B, Fig. 27; then cut away at each side as in B and C of Fig. 27 and A

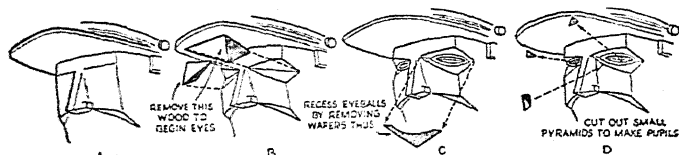


FIG. 28

in Fig. 28, about $\frac{1}{8}$ in. deep. Now outline the cheek bones by cutting a line $\frac{1}{16}$ in. deep, sloping downward each side of the nose (see C, Fig. 27 and A, Fig. 28). Cut up from the point of the jaw to meet this line, and cut along each side of the face to form the jawbone, but don't cut up so far that you remove wood needed later for the ears. For Sam'l's mouth, cut a shallow slit squarely across the face (or tilting up a little at the corners, depending on how much grin you want him to have) and about $\frac{1}{16}$ in. below the nose.

The eyes are started with notches as in B, Fig. 28. They are about $\frac{1}{8}$ in. deep and down about $\frac{1}{8}$ in. from the joint between face and cap. They start at the bridge of the nose and are deepest well out at the sides of the head. If you want to, cut out thin wafers as in C, Fig. 28 to form eyeballs, and make each pupil by cut-

ting out a tiny triangle as in D, Fig. 28; otherwise merely flatten out the base of the eye socket, then cut a small slit across it. Dig a little hole at the middle for the eyeball.

Next shape the cap as in A, B, and C of Fig. 29, sloping in toward the head at the sides and back, and cutting in carefully above the cap visor at the front. If you are not careful, you'll split off the cross-grained

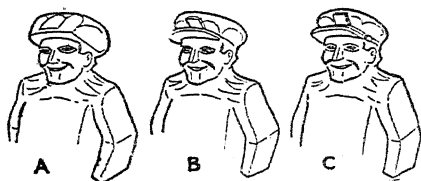


FIG. 29



FIG. 30

visor. Shape the ears as in Fig. 30, and cut away the wood at the temples below the skipper's conservative sideburns. Cut in at the back of his neck as in Fig. 30, and roughen or groove the wood back there to resemble hair. Form the hat strap, side buttons, and cap emblem carefully by shaving away the wood around them—these are distinctive parts of a seaman's cap.

Now outline lapels and coat collar, lapel buttonholes, collar and tie as in Fig. 21. Score deeply along these lines, and shave the wood away outside them so that these details stand out. Lower the shoulders a bit by cutting away outside the collar, and cut them back a little to show the lapels. Go over the whole figure, shaping each part carefully according to Fig. 21 and

Fig. 31. Sleeve creases are just three notches at the inner edge of the sleeve inside the elbow (see Fig. 31). Score the line where the coat laps to button, and round off the coat down to the joint between coat and sleeves. Don't be too careful—a few broad knife cuts will make your skipper distinctive. Now mark the button positions, drill holes, glue in ends of kitchen matches, and cut them off short. If you want the pea-



FIG. 31

jacket to be strictly "regulation," use six buttons instead of four.

Don't use sandpaper on the skipper! He's a hard-bitten, seafarin' man, and sharp angles accentuate his character. Any paint you have—oils, enamel, lacquer, or even water colors—will do. Make Sam'l's shoes, coat, cap visor, emblem, and strap black. Make his trousers and the crown of the cap white. His face should be a healthy flesh color, with a dash of color at the cheek bones, nose tip, and perhaps chin tip. Hair and eyebrows are white, of course. Pupils of the eyes are black with a short white line at the left-hand side of each (don't put both of the lines inside or outside, or the skipper will look cross-eyed). Better give each part two or three coats, and allow plenty of drying

time between applications. Touch up the cap visor and ornament with gold (the insignia should be crossed anchors, if you wish to be exact)—and there's Skipper Sam'l, rugged seafarin' man!

One of the most novel pastimes we know of is whittling figures from ordinary match sticks. "But you can't make much from an ordinary match stick," you may say. Just try it, and you will be astonished at the possibilities of this humble medium. To make these unusual figures and animals requires only a reasonable amount of care and patience, and when completed they will greatly amuse both yourself and your friends.

The general principles of making human figures, animals, trees, and shrubbery from match sticks are shown in the drawings of Figs. 32 and 33. Curves and angles are produced by cutting, bending, and breaking the wood as necessary. When breaks are made, a drop of glue or mucilage is applied to the joint and allowed to dry before the work is continued.

In the models illustrated, some attempt has been made to give them natural proportions. For example, the proportions of the human figures are approximately correct in comparison to the length of the head, which is the governing unit. They can be varied to make the figure appear comical or grotesque; indeed these are desirable objectives in this kind of work. Among the subjects most suitable are sports of all kinds, such as skating, boxing, or horseback riding (see Fig. 34), and other occupations involving vigorous action. A completed group may be preserved by gluing them to

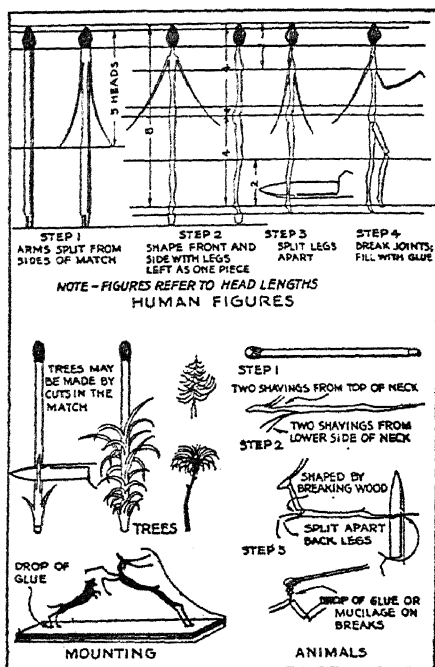


FIG. 32

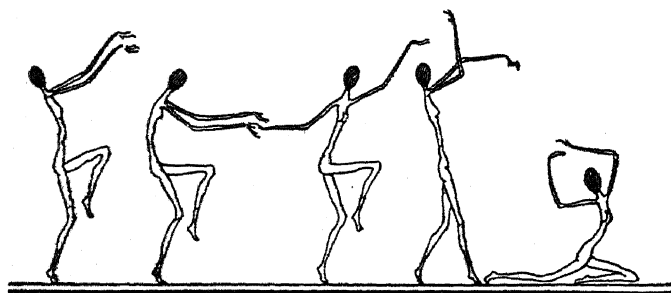


FIG. 33

a small piece of stained wood or colored cardboard. Whole outdoor or indoor scenes may be built up, using sawdust for grass, a mirror for water, and small stones

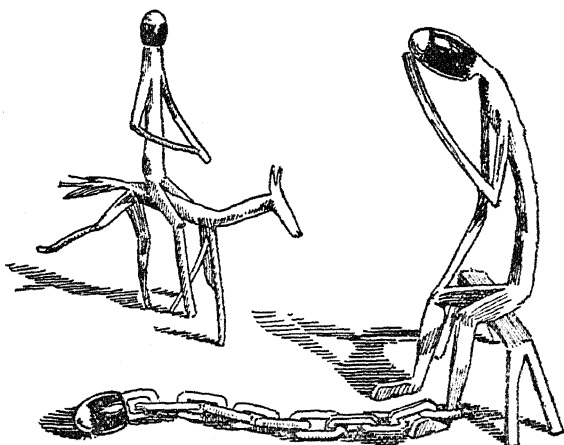


FIG. 34

for rocks, against which the figures will show up to good advantage, especially if properly colored.

"The Prisoner," shown in Fig. 34, won first prize in a match-stick carving contest and indicates how much interest and appeal can be incorporated in these simple carvings.

CHAPTER XIV

MISCELLANY

THIS last chapter is going to be a very short one. The book contains many suggestions for the craftsman who wishes to spend his leisure time enjoying a pleasant hobby. A great many of the articles suggested in the chapters must be built before they can be carved. This requires some tools besides those used strictly for carving. Many who wish to learn carving may not be able to afford the necessary outlay for a set of wood-carving tools and a set of tools to do cabinetmaking as well. It is for these that this chapter has been included in the book.

If the prospective wood carver will visit the nearest 5 and 10-cent store, he will find many novelties made of wood which are suitable for carving. Among these are sure to be such objects as wooden wastebaskets, wooden salad-serving forks, and large wooden spoons as well as a generous array of other wooden utensils. Many of these are made of softwood such as white pine; others are made of maple. Both of these materials are quite suitable for carving or whittling, and the utensils are likely to be well seasoned and therefore good objects to begin on.

Besides articles made of wood, the keen observer will see a large assortment of other decorative objects

from which he may gain ideas that will be of value to him in making designs of his own. In Fig. 1 we show a small brass dinner gong with a Chinese dragon motif. This is the type of thing one may buy at almost



FIG. 1

any novelty counter in a department store. A similar gong could easily be carved of wood by following this or a similar pattern. Such a project would make an ideal gift and would in all probability have a ready sale appeal.

Figure 1 shows a large wooden spoon and a wooden fork which were purchased in a 5 and 10-cent store. A

good suggestion for a design to carve on the handles of such pieces is given in Fig. 2. This design could be modeled in relief, or it might be incised. Hardware stores, 5 and 10-cent stores, and other stores sell wooden mixing bowls of various kinds which could be carved in a manner similar to the one which is shown in Fig. 5, Chapter IX. Wooden serving trays, small

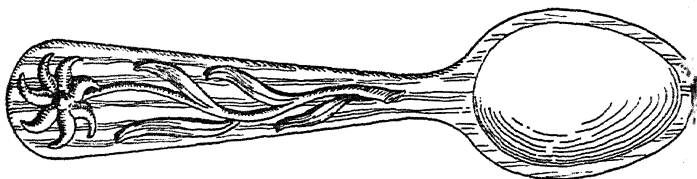


FIG. 2

boxes, and other novelties are additional possibilities. Most of these may be bought unfinished.

One may carve an attractive butter or pie-dough mold from an ordinary rolling-pin that can be purchased cheaply. The carving on these is usually inverted modeling, that is, the design which is to be raised on the butter or dough would have to be carved in reverse order on the mold.

Wooden plaques make interesting pieces and, in many instances, a pocketknife and a block of scrap wood are adequate equipment to turn out one with considerable detail. Plaster plaques make very suitable models for this type of work.

In addition to the articles which may be bought inexpensively, there are hundreds of other possibilities in every piece of scrap wood which may turn up around the house. Shallow wooden ash trays may be

carved or whittled from a very small block. The list might include pencil trays, paper weights, hot-dish mats, children's toys, etc.

Too, there are almost sure to be things around the house which could be greatly improved by carving. Old wooden-backed hand mirrors, footstools—you can add many more to make your own list—are among the familiar items that are enhanced by the wood-carver's skill.

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